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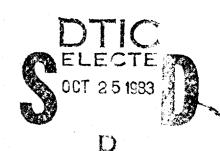
The Revised AFGL Infrared Sky Survey Catalog

STEPHAN D. PRICE THOMAS L. MURDOCK

AD-A134

16 June 1983

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OPTICAL PHYSICS DIVISION PROJECT 7670
AIR FORCE GEOPHYSICS LABORATORY
HANSON AFB. MASSACHUSETTS 01731

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM	
REPORT NUMBER	2. GOVT ACCESSION NO	3 RECIPIENT'S CATALOG NUMBER	
AFGL-TR-83-0161	AD-A13400	<u></u>	
TITLE (and Subtitle)		5 TYPE OF REPORT & PERIOD COVERED	
THE REVISED AFGL INFRARED SKY SURVEY CATALOG		Scientific. Interim.	
		6 PERFORMING ORG. REPORT NUMBER AFSG No. 442	
AUTHOR(s)		8 CONTRACT OR GRANT NUMBER(s)	
Stephan D. Price Thomas L. Murdock			
PERFORMING ORGANIZATION NAME AND AD		10 PROGRAM ELEMENT PROJECT TASK AREA & WORK UNIT NUMBERS	
Air Force Geophysics Labora Hanseom AFB	atory (OPI)		
Massachusetts 01731		62101F 7670060S	
CONTROLLING OFFICE NAME AND ADDRES		12 REPORT DATE	
Air Force Geophysics Laboratory (OPI)		16 June 1983	
Hanscom AFB Massachusetts 01731		13 NUMBER OF PAGES	
MONITORING AGENCY NAME & ADDRESS(II	different from Controlling Office)	15 SECURITY CLASS. (of this report)	
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		154. DECLASSIFICATION DOWNGRADING	
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20. Abstract - Contd.

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The catalog contents are resolved into two general groups: a disk population (slope = 0.4) with mean colors $m_1 n - m_2 n = 2.0$ and $m_2 n - m_2 n = 0.9$ corresponding to color temperatures of 270K and 185K, respectively, and a spherical distribution (slope = 0.6) with a mean color difference of $m_1 - m_2 n = 1.0$ corresponding to $m_1 - m_2 n = 1.0$ corresponding to $m_1 - m_2 n = 1.0$

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Preface

This revised infrared sky survey catalog includes the results of the extensive verification and photometric studies of AFGL sources performed since 1976 as well as recent survey measurements with larger instruments. These additions have broadened the photometric data base and, at least in the short term, the catalog contains the most comprehensive description of the infrared background brighter than $10^{-16}~\rm wcm^{-2}\mu m^{-1}$. The three primary spectral bands at 11, 20, and 27 μm ($\Delta \lambda \simeq 5~\mu m$) cover astrophysically interesting regions; the 11- and 20- μm bands span the silicate emission features, the 27- μm band is at the crossover point in the spectral energy distribution for warm sources embedded in cold dust clouds. The effective wavelengths, intermediate spectral resolution, and photometric accuracy (20 to 30 percent) of the AFGL survey observations allows a quantitative analysis of the spectral energy distributions of the brightest sources in the 8- to 30- μm spectral regions.

Much of the computer programming necessary to reduce and analyze the data was done by Len Marcotte, including aspect determination. Photometric calibration was the responsibility of Paul LeVan.

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The Revised AFGL Infrared Sky Survey Catalog

1. INTRODUCTION

Since the AFCRL and AFGL catalogs (Walker and Price and Walker²) were published a significant ground-based effort has been made to verify the AFGL sources not previously associated with known cataloged objects (Low et al; Lebofsky et al; Gehrz and Hackwell; Allen et al; 7 Joyce et al; Lebofsky et al; ⁹ Kleinmann et al; ¹⁰ Gosnell et al; ¹¹ Rudy et al; ¹² Ney and Merrill; ¹³ Grasdalen et al 14) and to analyze the contents of the catalogs (Harris and Rowan-Robinson; 15 Lebofsky et al; Kleinmann et al; 16 Grasdalen et al 14). The groundbased searches for the catalog objects have provided improved positions for many of the sources as well as more extensive photometry. The questions about the unconfirmed sources raised by the early investigations of the AFCRL catalog have, for the most part, been resolved. Some of these sources are indeed spurious (Price and Walker 17), while others are too extended to be detected by groundbased telescopes (Lebofsky et al; Price; 18 Price et al 19). Many of the spurious sources were eliminated from the AFGL catalog in the reanalysis by including a rescan confirmation criterion in addition to the signal-to-noise gate used for the AFCRL catalog. Several real sources were also taken out but retained in a supplemental catalog (Price 20) of potentially interesting objects.

(Received for publication 10 June 1983)

Because of the large number of references cited above, they will not be listed here. See References, page 29.

The "AFGL Four Color Infrared Sky Survey" catalog of Price and Walker has been revised in this report to include more accurate information. The ground-based searches provide identification and improved positions for the unidentified AFGL sources. Associations of known objects with survey sources are upgraded to identifications based upon subjective judgment of the photometric agreement between the survey magnitudes and those listed in either the "Catalog of Infrared Observations" (CIO) compiled by Gezari, Schmitz, and Mead on the list of Grasdalen et al. If the source is considered "identified" then the best available position is substituted for the survey value. Photometry from the ground-based studies and the CIO is included, where possible, if no survey measurement was obtained at the wavelength in question or if the survey observation is deemed spurious. The major revision in the present catalog, however, is the inclusion of data from two more sensitive surveys flown in 1982.

2. THE NEW SURVEY EXPERIMENTS

The Far Infrared Sky Survey Experiment (FIRSSE) is a joint effort between AFGL and the Naval Research Laboratory (NRL) to survey the sky in five spectral bands spanning the spectral region between 8 and 120 μ m. It was successfully flown from White Sands Missile Range, New Mexico (WSMR) on 22 January 1982 at $8^h00^m00.191$ UT. The ARIES guided rocket flew the 660-kg payload to a peak altitude of 379 km providing for 450 sec of data acquisition. The instrumental performance in the two long wavelength spectral bands (40 and 90 μ m) is described in detail by Price, Murdock, and Shivanandan. The measurements made in the two long wavelength bands are reported by Price et al 23 and Price, Murdock, and Shivanandan. The present report includes only measurements in the two short wavelength bands at 20 and 27 μ m.

A second experiment, the Survey Program of Infrared Celestial Experiments (SPICE) was flown from WSMR on 14 September 1982 at $4^{\rm h}48^{\rm m}$ 59.959 UT. A 363.5-km apogee was achieved and 455 sec of data taken. About 30 percent of the sky was surveyed in three broad spectral bands centered at 11, 20, and 27 μm .

A general description of the conduct of AFGL celestial experiments is given in a series of AFGL technical reports that detail the calibration (Price and

^{21.} Gezari, D.Y., Schmitz, M., and Mead, J.M. (1982) Catalog of Infrared Observations, NASA Tech Memo. 83819.

^{22.} Price, S.D., Murdock, T.L., and Shivanandan, K. (1983) <u>The Far Infrared</u>
Sky Survey Experiment Final Report, AFGL-TR-83-0055.

Price, S.D., Shivanandan, K., Murdock, T.L., and Bowers, P.F. (1983)
 The brighter 94 μm sources observed by the far infrared sky survey experiment, Astrophys. J., in press.

Walker²⁴), the aspect determination (Price et al²⁵), and the requirements with respect to particulate contamination (Price, Cunniff, and Walker²⁶). Price and Marcotte²⁷ also briefly discuss the instrumentation used to gather the survey data; whereas Price, Murdock, and Shivanandan²⁸ describe the FIRSSE and SPICE instruments specifically. The pertinent features of these new experiments are summarized below.

Both the SPICE and FIRSSE telescopes use a doubly-folded Gregorian optical design with a 36-cm diameter primary mirror. The focal planes consist of linear staggered arrays of detectors in each spectral band. Each of the three SPICE arrays has 18 detectors with in-scan widths of 2.5 arc min and cross-scan lengths of 10.75 arc min for a $2.28 \times 10^{-6} \rm sr$ field-of-view. The 2.4-arc min overlap of adjacent detectors leads to a total cross scan extent of 2.5 for the entire array. The FIRSSE 11-, 20-, and 27- μ m detectors are 2.5 by 10 arc min and overlap by 1.75 arc min. The 13 elements in each 11- and 20- μ m arrays have a cross-scan extent of 1.82. The 27- μ m array has 15 elements and covers 2.1. The 11-, 20-, and 27- μ m spectral filters were cut from the same samples for both instruments and only minor differences exist in the spectral response of the detectors between the two instruments. The adopted effective wavelengths are 11, 20, and 27 μ m with effective bandwidths of 4.5, 5.5, and 5.0, respectively.

The telescope is yoke-mounted in a one-axis gimbal orthogonal to the longitudinal or roll axis of the payload. A star tracker is coaligned to the roll axis and the payload spin balanced about this axis during pre-flight preparations. During powered flight the star tracker looks aft. The payload and spent motor are separated by a double pneumatic bellows upon release of manacle clamps. A separation velocity of 9 m/sec was achieved on both flights, sufficient to escape the contamination from the spent motor seen on other ARIES-borne experiments (Price et al²⁹). The payload is inverted after separation and the tracker is locked to a

^{24.} Price, S.D., and Walker, R.G. (1978) Calibration of the HI STAR Sensors, AFGL-TR-78-0172, AD A061020.

Price, S.D., Akerstrom, D.S., Cunniff, C.V., Marcotte, L.P., Tandy, P.C., and Walker, R.G. (1978) <u>Aspect Determination for the AFGL Infra-red Survey Experiments</u>, AFGL-TR-78-0253, AD A067017.

^{26.} Price, S.D., Cunniff, C.V., and Walker, R.G. (1978) <u>Cleanliness Considerations for the AFGL Infrared Celestial Survey Experiments</u>, AFGL-TR-78-0171, AD A060116.

Price, S. D., and Marcotte, L. P. (1980) An Infrared Survey of the Diffuse Emission Within 5° of the Galactic Plane, AFGL-TR-80-0182, AD A100289.

Price, S.D., Murdock, T.L., and Shivanandan, K. (1981) Air Force Geophysics Laboratory (AFGL) infrared sky survey experiments, <u>Proc. SPIE</u> 280; Infrared astronomy, <u>Scientific/Military Thrusts and Inst.</u> 33.

Price, S.D., Murdock, T.L., McIntyre, A., Huffman, R.E., and Paulsen, D.E. (1980) On the diffuse cosmic background measured from ARIES A-8, Astrophys. J. (Lett.) 240:L1.

pre-selected star. The star and launch time are chosen such that the star is near local zenith and meridian transit.

Once the star is acquired, control of the pitch and yaw jets is switched to the tracker. Error signals from the tracker are used to drive the star to a null and maintain that position to within a root mean square (rms) value of 30 arc sec while the payload rotates about that axis. This essentially established an altazimuth coordinate system with the pole of rotation fixed to the inertial coordinates of the star and the zenith angle set by the gimbal deployment angle of the telescope. The azimuth angle as a function of time is derived from stellar transits detected through an "N" slit retical mask at the focus of a small visual photometer. The vertical leg of the "N" is aligned to the deployment plane of the telescope.

Initial deployment of the telescope is to a zenith angle of about 40° . At the end of a $382^{\circ}.5$ roll maneuver the sensor deployment angle is increased. The roll rate is adjusted to maintain a constant linear scan rate across the focal plane. The deployment angle of the telescope is increased during the first half of the experiment, reaching maximum deployment near apogee. The sensor is stepped up during the down leg of the trajectory. This scan program produces the maximum celestial coverage without significantly "background limiting" the performance of the detectors with off-axis thermal radiation from the earth. Data acquisition is limited to altitudes higher than 130 km. The $22^{\circ}.5$ roll is included for stepping the sensor so that at least 360° of each roll is at a constant zenith angle.

A linear scan rate of 20°/sec and stepping increment of 2°.144 were employed for the FIRSSE flight. The SPICE flight used a 150/sec scan rate with 4.288 steps. Thus almost completely redundant coverage was obtained in the FIRSSE 27- μ m band and 85 percent redundancy at 20 μ m. Only 14 percent overlap was programmed for the three SPICE arrays. The redundancy factor and difference in linear scan rates reflect the difference in the objectives between the two experiments. A higher degree of redundancy for the FIRSSE long wavelength bands (27 through 120 μm) was important because of the pioneering nature of the experiment. FIRSSE was the first exo-atmospheric experiment to successfully use super-fluid helium as a cryogen under dynamic thermal loading. It also was the first experiment to use Ge:Ga photoconductors in a multi-element focal plane to survey a large fraction of the sky at wavelengths longer than 30 μm. A very large areal coverage was desired for SPICE in order to survey at wavelengths shorter than 30 μ m as much of the galactic plane around the galactic center as possible. The low rescan confirmation opportunity was balanced against much improved mapping of the galactic plane. The galactic plane was surveyed from a longitude of 355°, through the center, out to 36°. This coverage provided 11-, 20-, and 27-µm maps over this region at high signal-to-noise.

A complete survey over the area covered by both experiments was not realized because: (1) about 10 percent of the data for each experiment contained optical contamination, (2) a bias short to ground in the FIRSSE 11-um band made this band inoperative, and (3) a shorted MOSFET on one of the SPICE 20-µm channels made this channel inoperative. One other 20-µm SPICE channel was anomalously noisy. Aside from the problems mentioned above, the performance of the instruments was acceptable. The average noise equivalent flux density (NEFD) was measured in flight to be 10^{-16} , $4 < 10^{-17}$, and $2.5 < 10^{-17}$ wcm⁻² for the 11-, 20-, and 27-um SPICE bands, respectively. The FIRSSE NEFD at 20 and 27 μ m was 2 \times 10⁻¹⁷ and 3.5 \times 10⁻¹⁷ wcm⁻², respectively. Although this is about a factor of four lower than predicted by pre-flight calculations, it is emphasized that, with the above exceptions, the noise, detector response, and NEFDs were nearly constant resulting in a uniformly complete survey over the area covered. This is in marked contrast to the survey experiments that produced the AFGL catalog, which were background limited, leading to a variation in noise of roughly a factor of ten during the experiment.

3. DATA REDUCTION

The signals generated as the detectors are swept across the sky are amplified and band limited. The high frequencies are attenuated by a low-pass filter with a characteristic frequency set at the inverse of twice the "point source" transit time across a detector. The response rolls off at 12 dB per octave with a corner frequency at 250 Hz for the FIRSSE channels and at 180 Hz for SPICE. Low frequencies generated by 1/f noise and background modulation are filtered with a single RC network with characteristic frequencies set at 10 and 4 Hz for FIRSSE and SPICE, respectively. The signal is sampled 1600 times per second. digitized and telemetered to the ground, where it is recorded on high-speed analog tape. After flight the analog tape is read, decommutated, and converted back into a digital format for storage on computer compatible digital tapes. These tapes are subsequently processed to extract signals from the survey data and the star mapper. The azimuth solution is then determined in the form of cubic polynomials as a segmented function of time as described in detail by Price et al. 25 The rms error in the azimuth solution is less than an arc minute during a large part of both experiments. The noise and bias levels in blocks of the data stream 0.38 sec long are determined for each sensor channel. The averaging method used to determine these parameters excludes point source signatures. The data is filtered by subtracting the average output of the raw data 7 arc min ahead and behind the point in question. Potential sources are selected if the

signal peak exceeds three times the instantaneous noise in either the raw or filtered data. The signal rise time and cross-correlation coefficient are calculated for each potential source, using a filtered signal from an ideal point source for the cross correlation. These parameters recognize and reject impulse responses due to cosmic ray interactions. About 2.5 to 3 potential sources per second were accepted by the routine, roughly ten times that due to white noise alone.

Next, the coordinates of the potential sources are determined from the aspect solution and multicolor observations are combined into a single source. The results are compared to cataloged positions of known infrared objects: the "Two Micron Sky Survey" (TMSS) by Neugebauer and Leighton, ³⁰ its southern extension (Neugebauer ³¹), and the AFGL catalog. Measurements in one color only which are not associated with known infrared objects, are rejected if they are either detected during a time of anomalously high noise, for example, optical contamination, or are a point source with a filtered signal-to-noise less than three. About half the potential sources are eliminated in this manner. The TMSS associations are used to determine the tracker to sensor and gimbal offsets and any field rotation, thus improving the sensor aspect. Satellite and asteroid positions are calculated for the launch epoch in sensor coordinates, after which they are subsequently identified in the data and eliminated.

The published ground-based and aircraft borne measurements in the CIO and the photometry on AFGL sources by Grasdalen et al, 14 Ney and Merrill, 13 and Gosnell, Hudson, and Puetter 11 were used to calibrate the survey photometry. Sources which are known, or suspected to be, extended on the order of an arc minute were rejected. The reference irradiances were extrapolations of the listed measurements at or near the effective wavelength of the survey band by assuming a zero color difference. The zero magnitude spectral energy distribution was approximated by a $\lambda^{-3.95}$ power law over the wavelength range in question. Measurements between 10 and 12 µm were used for the 11-µm survey observations, between 18 and 22 μm for the 20- μm survey values, and between 20 and 35 um for the 27.3-um calibration. Multiple observations by different observers on a given source were averaged after subjectively eliminating the low quality values. The resulting list contains a number of late type variable stars. Price and Walker² confirmed that the differences due to variability between the adopted reference fluxes and the actual values at launch epoch for such stars averages out in the calibration.

Neugebauer, G., and Leighton, R.D. (1969) <u>Two Micron Sky Survey - A</u> Preliminary Catalog, NASA SP-3047.

^{31.} Neugebauer, G. (1971) Two micron sky survey zones -47° to -40° and -40° to -33°, private communication.

The sources with published recents are associated with the survey observations by positional agreement, within 3 are min in azimuth and 9 are min in zenith. A linear weighted least-squares regression of irradiance as a function of signal is calculated with a fixed zero intercept for each individual detector. The weights were subjective judgments of the quality of the published measurement. Sources with irradiance values greater than one standard deviation from the fit were rejected and the regression repeated. The discordant values of irradiance are possibly due to large amplitude source variability, beam size effects due to extended emission or source transit at the edge of a detector.

About 160 sources provided the 193 observations for calibration of the 11- μ m SPICE detectors. The smallest number of calibration sources per detector was four, the maximum number was 24, and the average was 10. The mean standard deviation of the differences between the reference and calculated irradiances was $1.3 \times 10^{-16} {\rm wcm}^{-2} {\mu} {\rm m}^{-1}$ for the 193 sources. On the average this is equivalent to a source with a signal-to-noise of 5. The 11- μ m calibration accuracy is estimated to be about 15 percent.

The 20- μ m calibration for SPICE used 118 measurements, an average of seven per detector with as few as three and as many as 11. About 60 objects provided 107 measurements to calibrate the FIRSSE 20- μ m survey photometry. The standard deviations averaged over the focal plane between the reference and calibrated values are 8 and 3 < 10⁻¹⁷ wcm⁻² μ m⁻¹ for the SPICE and FIRSSE arrays. These values again correspond on the average to a source with a signal-to-noise of about 5. The accuracy of the 20- μ m calibration is estimated to be about 20 percent.

At 27 μm there are 36 reference values for calibrating the SPICE array, an average of two per detector. At least one, and as many as four, sources were detected on each channel. Thirty-three measurements were available for calibration of the FIRSSE 27- μ m detectors. These included five asteroids (2 Pallas, 8 Flora, 15 Eunomia, 54 Alexandra, and 704 Internamnia). These asteroids were detected at signal-to-noise greater than 5 and also have published ground-based 10- and 20-µm photometry. A color temperature is derived from the best available 10- and 20- $\mu\mathrm{m}$ photometry in the literature and scaled by $T_{\mu} \propto \mathrm{R}^{-1/2}$ to the correct sun-asteroid distance. The 27-µm flux is extrapolated along a greybody distribution at this temperature and then scaled to account for the difference in earth-asteroid distances. No systematic difference was found between the individual system responsivities derived from stars and those calculated asteroid values. Even with the asteroid measurements three 27-µm FIRSSE channels had no associated calibration sources. The calibration for these detectors was obtained by scaling the relative responsitivities for the filter-detector combination derived from extensive preflight laboratory testing to an average of the 33

reference fluxes weighted by the number of observations on a channel. The calibration error in the 27- μm band is estimated to be 25 percent for SPICE and 30 percent for FIRSSE.

The calibration was performed in terms of irradiance (wcm⁻² μ m⁻¹) and is therefore independent of the bandwidth of the survey photometry and ground-base instrumentation in the first approximation. The calibration reflects the energy distribution for the bulk of the calibration of objects, late type stars with some excess dust radiation longward of 10 μ m. Color corrections are small for the 11-, 20-, and 27- μ m bands.

Note that although the absolute calibration accuracy is estimated to be 15, 20, and 30 percent at 11, 20, and 27 μ m, the relative photometry is much better. The relative photometric error is estimated to be 5 to 10 percent as determined by redundant measurements on overlapping scans within a flight and by the consistency of the confirming observations between the two experiments.

After calibration of the photometry, the measurements of the same source on adjacent detectors are combined as are the rescan observations during the 22.5 overlap at the end of each roll during which the sensor is stepped. Then, confirming measurements on the overlapping coverage between the up and down legs of the experiment are combined. If a source is not confirmed but lies in an area that was rescanned the data stream for the confirming scan is examined. The source is appropriately flagged if lack of confirmation results from optical contamination, an edge detection at the end of the array, or high noise level in the data stream. The sensor steps were chosen such that the overlapping coverage was offset by about one half the height of a detector. Detections on adjacent detectors and rescan confirmation are used to improve the position accuracy in the cross scan direction. The rms accuracy is about 1 arc min in azimuth, 4 arc min in zenith for an uncombined detection, and 1.5 arc min for a confirmed measurement.

The overlap on the SPICE and FIRSSE flights was searched for confirming observations. Measurements of a source on both experiments were combined and, as before, unconfirmed sources appropriately flagged. All sources that were not confirmed but in coverage within a flight or on the two experiments are eliminated from further consideration. Also rejected are sources not associated with a known infrared object that have a filtered signal-to-noise less than five or that were detected with anomalously high noise. The resulting list is then compared to the "AFGL Four Color Infrared Sky Survey" and the Supplement.

4. THE CATALOGS

The AFGL and supplemental catalogs were revised based upon information obtained from the ground-based searches and the CIO. About 30 sources in the main catalog and 360 in the supplement, which were not labeled as extended and were away from the galactic plane or HII regions, were eliminated for lack of ground-based confirmation. Next, where available, improved positions were adopted if the AFGL source was considered identified. The identification resulted from a subjective judgment based upon agreement between the survey photometry and that published in the literature. Photometric agreement was considered as additional confirmation of the survey observations and 74 entries in the supplement were included in the main catalog on that basis. The ground-based photometry was selected on the same basis as for the survey calibration previously discussed: 4.2 µm was an average of observations made at 3.6 and 5.0, 11 µm adopted the published magnitude between 10 and 12.5 μ m, and 20 μ m adopted the published magnitude between 18 and 22 μm . The most common false entry in the AFGL catalog is the so-called "spurious color" - a valid measurement is coupled with a spurious one at another (usually longer) wavelength when the multicolor observations are combined. The ground-based values were substituted for those believed to be spurious or included when no survey measurement was made at that wavelength.

The resulting lists were combined with the SPICE and FIRSSE measurements. For the AFGL sources detected by SPICE/FIRSSE the irradiances at a given wavelength were averaged providing they agreed within a factor of 2, otherwise the SPICE/FIRSSE values were adopted. A source in the supplement was upgraded to the main catalog if (1) the SPICE/FIRSSE measurement had a signal-tonoise greater than 5, (2) it was confirmed, either within a flight or from flightto-flight, or (3) the SPICE/FIRSSE observations had a common color with the AFGL entry and the two agreed to within 50 percent. A SPICE or FIRSSE measurement not associated with an AFGL source was incorporated into the main catalog if the signal-to-noise was greater than 5 and it satisfied at least one of the following confirmation criteria: the source is either seen twice on the same experiment or detected on both experiments, or that it is associated with an object known or suspected to be bright in the infrared, or that it is not associated with a cataloged object but it is a two-color measurement in adjacent bands, that is 11 and 20 μm and/or 20 and 27 μm . Although the last two criteria are weak, they were included to eliminate some of the spurious signals that satisfied the signalto-noise selection criterion but which were not rescanned or flagged as not detectable during rescan. These criteria would not eliminate optical contamination that would show up as a cluster of predominately extended, unconfirmed and

unassociated sources. The SPICE/FIRSSE measurements that fail these criteria are relegated to the current supplemental catalog as are those observations with a signal-to-noise of less than 5 and associated with either an AFGL supplement source, a TMSS star, or have a rescan combination.

5. DISCUSSION

There are now 2970 entries in the main catalog, 624 of which are new objects detected on the SPICE and FIRSSE flights. The remaining 2345 are listed in the AFCRL, AFGL, and AFGL Supplement catalogs. About 110 Supplement sources are included, having been confirmed by SPICE, FIRSSE, or ground-based searches. The catalog contents are plotted on Aitoff equal area projections in Figures 1, 2, 3, and 4 for the 4.2-, 11-, 20-, and 27-µm bands, respectively. The plots show that the distributions are more concentrated in the galactic plane at the longer wavelengths and the source density along the plane is quite nonuniform. The greater sensitivity of the SPICE and FIRSSE measurements is graphically depicted in the 20-µm plot (Figure 3) where the stippling of fainter sources define the scan coverage of these experiments. The areal coverage at each wavelength is listed in Table 1 along with the corresponding number of sources in the revised main catalog compared to that in the AFGL catalog. The second entry for 27 μm refers only the SPICE and FIRSSE measurements as all the fainter sources are from these flights because of the factor of 10 higher sensitivity at this wavelength.

Table 1. Area Surveyed in Each Color and Number of Sources Detected

Color	Total Area Surveyed		No. of Sources Revised Cat. AFGL Ca	
	sq. deg	percent		
4.2	32170	71	2053	1982
11	38159	92.5	1741	1151
20	38750	94	1563	646
27	30102	7 3	754	72
	*19732	47	663	



Figure 1. Distribution of 4.2-μm Sources in the Catalog on an Equal Area Projection in Equatorial Coordinates. The dashed line is the galactic plane; the heavy lines are the boundaries to the surveyed region. Sources outside survey region are CIO additions for objects detected at other wavelengths

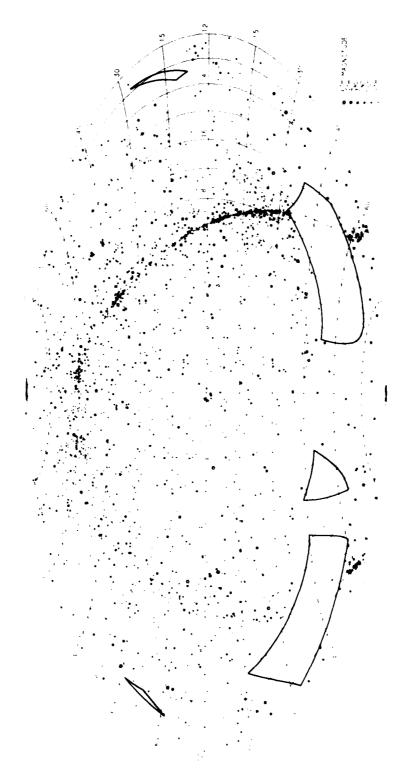


Figure 2. Distribution of the 11-um Sources. See Figure 1 for definition of features

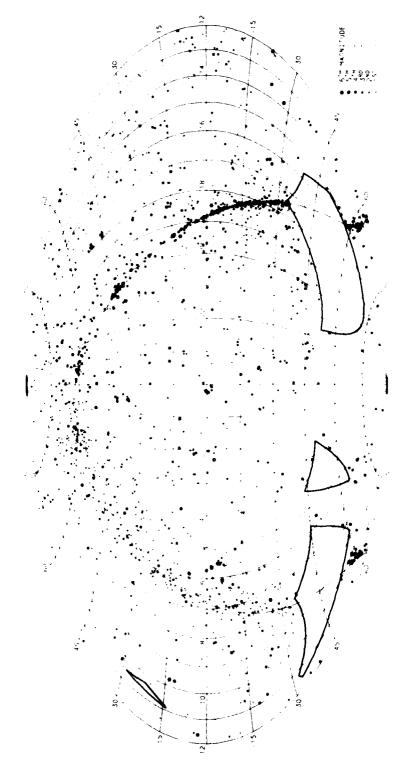


Figure 3. Distribution of the 20-µm Sources. See Figure 1 for definition of features

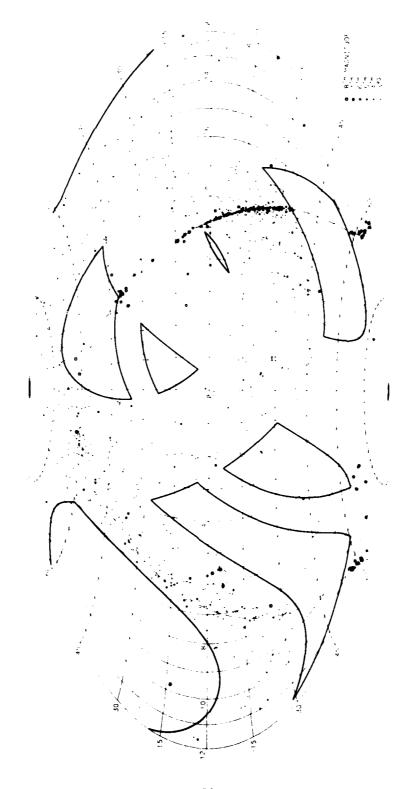


Figure 4. Distribution of the 27-µm Sources. See Figure 1 for definition of features

The logarithm of the number of sources brighter than a given magnitude as a function of magnitude for each wavelength is shown in Figure 5. The counts over the area surveyed are plotted as points. The FIRSSE and SPICE counts, normalized to the area covered at 20 μ m, are denoted by other symbols. For reference the uniform disk and spherical distribution slopes of 0.4 and 0.6 are also included. The greater sensitivity of the FIRSSE and SPICE measurements is reflected in the proportionally larger source counts for the experiments at the fainter levels. The uniformity of these survey measurements is indicated by the manner in which the curves flatten at the fainter magnitudes. At 11 μ m this occurs over a factor of 2 in brightness, which is the range in responsivities over the SPICE 11- μ m array. The smoother turnover of 20 and 27 μ m reflects the difference in sensitivity between flights in addition to the difference in detector responsivities.

The 11- and 20- μ m source counts show a distinct change of slope from 0.4 to 0.6 at about m₁₁ \simeq -3.5 and m₂₀ \simeq -4.5. The 27- μ m source count is consistent with a 0.4 slope over the entire coverage. Numerically, the source counts are well represented by the expressions:

Thus, the contents of the catalog can be resolved into two broad categories: a disk population with mean colors of m_{11} - m_{20} = 2.0 and m_{20} - m_{27} = 0.9 corresponding to color temperatures of 270K and 185K, and a spherical distribution of sources with a mean color difference of m_{11} - m_{20} = 1.0 corresponding to a 480K color temperature. The 0.5 slope for the 4- μ m sources is not fully understood. Kleinmann, Gillett, and Joyce ¹⁶ found similar slopes for stars at 0.55 μ m from the "Bright Star Catalog" (Hoffleit ³²), at 2.2 μ m from the TMSS (Neugebauer and Leighton ³⁰), and at 4.2, 11, and 20 μ m from the AFGL catalog. The SPICE plus FIRSSE measurements indicate that the AFGL survey at 11 and 20 μ m was non-uniform at fainter magnitudes, which blurred the crossover point in the two distributions producing an "average" result. However, this explanation should not apply to the shorter wavelength measurements that are crossreferenced much more extensively.

^{32.} Hoffleit, D. (1964) <u>Catalog of Bright Stars</u>, Third Revised Edition, Yale U. Obs.

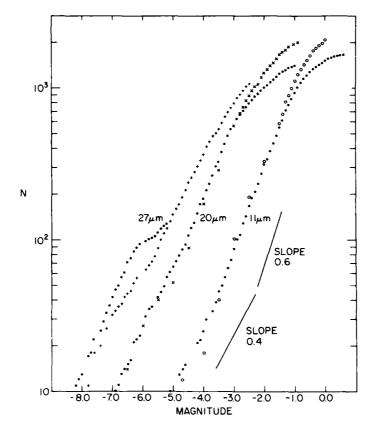


Figure 5. Number of Sources Brighter Than a Given Magnitude as a Function of Magnitude for the 11-, 20-, and 27- μm Sources in the Revised Catalog. Points are values for the entire catalog; (o) denotes the 11- μm source counts for SPICE multiplied by 3, (x) and (+) designate the 20 and 27 μm , respectively, source counts for SPICE and FIRSSE multiplied by 2. Also shown is a slope 0.4 characteristic of a uniform disk distribution and slope 0.6 a uniform spherical distribution

The limits in the numerical expressions for the source count are the magnitudes at which the SPICE plus FIRSSE source counts begin to diverge from a slope of 0.6 at 11 and 20 μ m and 0.4 at 27 μ m. These limits roughly correspond to the signal-to-noise criterion for inclusion in the main catalog. We adopt these values as the completeness level of the catalog at least over the area covered by the recent experiments.

This statistical approach to derive completeness of the survey and the use of source parameters to describe the overall background have been strongly criticized by Grasdalen et al. ¹⁴ They state that "until the AFGL sources are verified

from ground based observations statistical analyses based solely on the AFGL catalog are highly suspect". Also, referring to the conclusions reached by Kleinmann et al, ¹⁶ "since they have not made ground based observations to verify existence of these sources as a function of magnitude their completeness limit has no physical meaning. It is entirely conceivable that all the sources at their limit are spurious".

While it is true that some of the sources in the catalog are suspect, notably the cluster of objects near $0^{h}15^{m}$, $+0^{o}$ and $0^{h}30^{m} + 35^{o}$, possibly for reasons of particulate contamination, these sources are a small percentage of the total. The slopes of 0.4 and 0.6 in the log N vs m have a physical rational. Highly contrived spatial, spectral, and amplitude distribution of spurious sources would be required in order not to distort the log N vs m plots if these false entries constituted a significant portion of the catalog. Also, about 85 percent of the sources in the catalog are either confirmed by rescan or have plausible associations, and some of those with plausible associations have measurements consistent with the photometry in the CIO. Over half of the remainder lie either along the emission ridge in the galactic plane or the Orion Complex or have magnitudes below the completeness level. Bright infrared objects in the galactic plane and molecular clouds are likely to be heavily obscured stars. Thus, the revised catalog does constitute an adequate data base from which general parameters on the background character may be drawn. It is currently the only data base for HII regions and other extended sources that Grasdalen et al 14 preferentially excluded from their analysis.

The concentration toward the galactic plane that defines the disk population is shown in Figure 6 as a histogram of the number of sources brighter than the statistical limits at each wavelength in increments of 0.1 in sin b. Equal areas are encompassed in the bins and the plots are roughly proportional to the areal density. The concentration to the galactic plane becomes greater with increasing wavelength; 26 percent of the 4.2- μ m sources, 45 percent of the 11- μ m, 50 percent of the 20- μ m, and 73 percent of the 27- μ m sources are within 5.74 of galactic plane.

The longitude distributions of the 11- and 20- μ m sources brighter than the completeness limits and within 5.74 of the galactic plane are shown in Figure 7. Hatched area represents the number of non-stellar or unidentified objects in each region. On the average 60 percent of the 11 μ m and 80 percent of the 20- μ m sources fall into this category. The prominent peaks at 25° and 310° longitude lie in the direction of a tangent to the spiral arms defined by the HII regions studied by Georgelin et al³³ as does the smaller peak at 45°. Other peaks at 80°.

Georgelin, Y. M., Georgelin, Y. P., and Sivan, J.-P. (1979) Optical IR regions, IAU Symposium 84, The Large Scale Structure of the Galaxy, W. B. Burton, Ed., D. Reidel Pub. Co., Dordrecht, Holland.

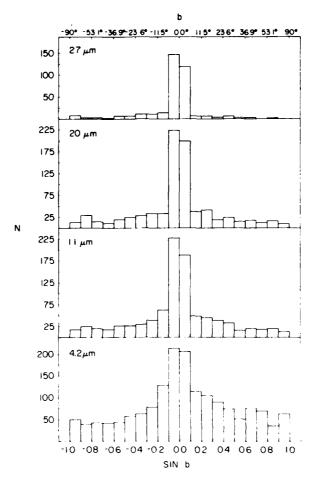


Figure 6. Latitude Distribution of the 4-, 11-, 20-, and 27- μ m Sources. Bins are increments of 0.1 in sin b or equal areas for all sky coverage; counts are roughly proportional to areal density. Sources brighter than the completeness limits of 1.3 magnitudes at 4 μ m, -1.0 at 11 μ m, -2.5 at 20 μ m, and -3.5 at 27 μ m

110°, 135°, and 290° longitude correspond to peaks in the distribution of HII regions detected at optical wavelengths along the galactic plane (for example, the compilation of Marsalkova³⁴). This indicates that the disk population in the galactic plane is dominated by HII regions or sources associated with them.

Multicolor observations that have $m_{20} \le -2.5$ are shown on two-color plots in Figures 8 through 10. The spectral class of the source in the [4.2-11 μ m],

^{34.} Marsalkova, P. (1974) A comparison catalogue of HII regions, <u>Astrophys. Space Sci.</u> 27:3.

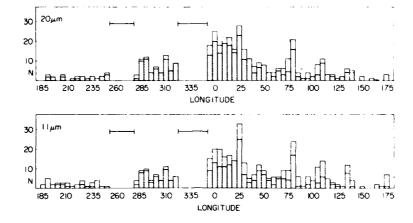


Figure 7. Longitude Distribution of the 11- and 20- μm Sources Within 5.74° ($|\sin b| \leq 0.1$) of the Galactic Plane. Shaded area represents the number of nonstellar or unassociated sources in the region. Marked areas from 260° to 280° and 325° to 355° longitudes are not covered at these wavelengths. Histograms include sources brighter than -1.0 magnitudes at 11 μm and -2.5 at 20 μm

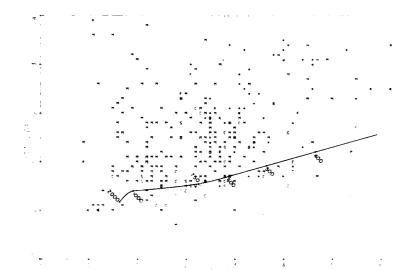


Figure 8. [4.2-11 μ m] vs [11-20 μ m] Color-color Plots for Sources Brighter Than -2.5 Magnitudes at 20 μ m. Symbols denote major spectral class with asterisks representing unclassified objects. (P = peculiar object η Car, W = Wolf Rayet, H = HII region.) The F stars are T Taurii stars, the very red, very cold K source is M17. The band integrated blackbody color temperature curve is also shown and a few reference values designated

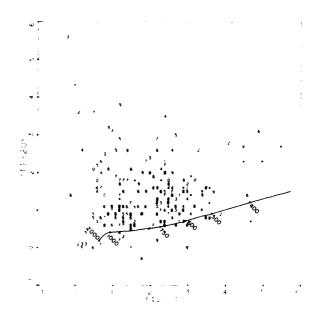


Figure 9. [4.2-11 μ m] vs [11-20 μ m] Color-color Plots for the M Stars Brighter Than m₂₀ \leq -2.5. The plotted number denotes the M subclass assigned to the star. M stars without subtypes are designated by an asterisk. The curve for the band averaged blackbody color temperatures and reference values are also shown

[11-20 µm] is plotted in Figure 8 if it is known, an H denotes a known the region and an asterisk (*) an undesignated source. The spectral type is given even if the source is embedded in dust with the majority of the infrared emission from the surroundings. The color temperature curve for $[4.2-11 \,\mu\text{m}]$, $[11-20 \,\mu\text{m}]$ is also plotted with reference values noted. Almost all the sources lie above the blackbody curve with cool color temperatures ranging from 2000K to 400K for the [4.2-11 μ m] measurements and 1000K to 150K for the [11-20 μ m] differences. The M stars are replotted in Figure 9 with the spectral subclass as the symbol; an asterisk denotes lack of a subclass. The large majority of stars have [11-20 μ m] \leq 2.0 in agreement with the conclusion of Harris and Rowan-Robinson. ¹⁵ Extinction or excess emission will cause the points to lie above the blackbody curve. Interstellar extinction has a negligible effect. For an $A_{\nu} \sim 30$ magnitudes, the extinction to the galactic center, [11-20 μ m] is increased by less than half a magnitude if the interstellar grains have silicate absorption $(A_{4,2} = A_v/20,$ $A_{11} = A_v/25$, and $A_{20} = A_v/37$; see Kleinmann, Gillett, and Joyce 16). Emission from circumstellar dust shells would cause the large observed departures in the

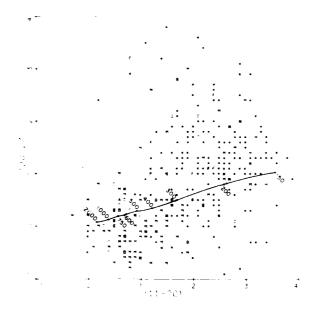


Figure 10. [11-20 μ m] vs [20-27 μ m] Plots for Sources With m₂₀ \leq -2.5. Symbols have the same meaning as in Figure 8

colors from the blackbody curve. From Figure 8 it is apparent that circumstellar emission is a common feature of M stars which are bright in the infrared.

The [11-20 μ m] vs [20-27 μ m] colors are plotted in Figure 10 for sources brighter than $m_{20} \leq -2.5$. Most of the stars are in the region [11-20 μ m] ≤ 1.5 and [20-27 μ m] ≤ 0.5 and fall below the blackbody curve. The majority of these stars have circumstellar emission due to silicates. Band emission from silicates at 10 and 20 μ m would enhance the 11- and 20- μ m fluxes compared to that at 27 μ m. The unassociated sources and HII regions populate the region [11-20 μ m] ≥ 1.5 particularly for [20-27 μ m] ≥ 0.5 . The cool temperatures are characteristic of HII regions. The large [20-27 μ m] color indicates the presences of a significantly cooler ($T_0 < 100$ K) component of these sources.

6. CONCLUSIONS

The AFGL catalog has been revised to include measurements from two recent high sensitivity surveys and ground-based searches for sources in the previous catalog. Source counts on the revised catalog show two distinct populations, a spherical component with a slope of 0.6 and a disk component with slope of 0.4. The density distributions and mean color temperatures indicate that, for the most part, the spherical component is made up of late type stars with infrared excesses while the disk is composed of HII regions and stars embedded in circumstellar dust shells with large infrared excesses.

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Appendix A

Table of Observations

AL. COLUMNS 1, 2, AND 3 - POSITION

Coordinate information is given in these columns. The epoch 1950 right ascension and declination are given in columns 1 and 2, respectively. The three letter symbol in column 3 designates the reference for the position. In approximate order of increasing accuracy these reference positional accuracies are:

AFGL- AFGL catalog (Price and Walker; A1 Price A2) - 1!3 FIR/SPC - FIRSSE and SPICE derived positions - 0!8 GVS - Kukarkin et al A3 - A5 - 0!8 IRC - Neugebauer and Leighton, A6 Neugebauer A7 - 0!5 LKV - Low et al A8 - 30" LKR - Lebofsky et al A9 - 15 to 30" LSK - Lebofsky et al A10 - 1 to 30" UCS - Gosnell, Hudson, and Puetter A11 - 10" GH - Gehrz and Hackwell A12 - 5" JCG - Joyce et al A13 - 5 " KLM - Kleinmann et al A14 - 5 " WYO - Grasdalen et al A15 - 5 " EIC - Sweeney et al A16 , A17 - 5 "

Because of the large number of references cited above, they will not be listed here. See References, page 163.



CIO - listed in Gezari, Schmitz, and Mead^{A18} - ≤ 1"
SAO - Smithsonian Astrophysical Observatory Star Catalog^{A19} - <1"

In general the SPICE and FIRSSE source positions were not improved even though many of the associations were plausible identifications. Better positions were substituted for a few of those SPICE or FIRSSE objects that had corroborative ground-based photometry.

A2. COLUMNS 4 THROUGH 7 - PHOTOMETRY

The 4-, 11-, 20-, and 27- μ m photometry is listed in the next four columns, respectively, along with the estimated error or source reference if it is not a survey measurement. A magnitude derived from the CIO listing is designated by a C, one taken from Grasdalen et al^{A15} by a W and a value from Ney and Merrill^{A20} by M. These non-survey measurements are included in order to facilitate analyses of the catalog content. For example, Harris and Rowan-Robinson, A21 Kleinmann, Gillett, and Joyce, A22 and Grasdalen et al found it possible to divide the catalog content into broad but well-defined categories based upon the [4-11 μ m] vs [11-20 μ m] color differences.

The adopted zero magnitude irradiances are:

$$H(4.2) = 3.6 \times 10^{-15} \text{wcm}^{-2} \mu \text{m}^{-1}$$

$$H(11) = 8.7 \times 10^{-17} \text{wcm}^{-2} \mu \text{m}^{-1}$$

$$H(20) = 8.2 < 10^{-18} \text{wcm}^{-2} \mu \text{m}^{-1}$$

$$H(27) = 2.5 < 10^{-18} \text{wcm}^{-2} \mu \text{m}^{-1}$$

A18. Gezari, D.Y., Schmitz, M., and Mead, J.M. (1982) Catalog of Infrared Observations, NASA Tech Memo. 83819.

A19. (1966) Smithsonian Astrophysical Observatory Star Catalog, Government Printing Office, Washington, D.C.

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A3. COLUMN 8 - SPECTRAL TYPE

The spectral type is listed in column 8. The large majority of the spectral types result from association of the survey source with an object in the TMSS. The compilation of Bidelman ^{A23} of the published spectral classifications for the TMSS and his own determinations of spectral type was used. Additional spectral types for AFGL sources come from Bidelman, ^{A24} Buscombe, ^{A25} the "General Catalog of Variable Stars (Kukarkin et al ^{A3-A5}, ^{A26}) and Kleinmann, Gillett, and Joyce. ^{A22}

A4. COLUMN 9 - AFGL NUMBER

The AFGL number is listed in this column. Numbers less than 3200 identify sources in the AFCRL and AFGL catalogs. An S appended to an AFGL number in the main table denotes a source originally in the supplemental catalog (Price A2). The 624 detections on the SPICE and FIRSSE flights are enumerated, beginning at 5001 by right ascension. The new entries in the "revised" supplemental catalog begins at 6001S.

A5. COLUMNS 10, 11, AND 12 - ASSOCIATIONS

Associations with sources in other catalogs are listed in these 3 columns: the Two Micron Sky Survey (Neugebauer and Leighton A6) and its extension (Neugebauer A7) in column 10, the Bright Star (Hoffleit A27) in column 11, and other designations in column 12. The entries in columns 11 and 12 are independent of the TMSS association. If the source has no Bayer, Flamstead, or variable star designations, column 11 contains associations with sources in the "Dearborn

A23. Bidelman, W. P. (1980) Spectral Classifications for the Stars of the Calted Two Micron Survey, Warner and Swasey Obs. 2(No. 6).

A24. Bidelman, W.P. (1980) Private communication.

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A27. Hoffleit, D. (1964) Catalog of Bright Stars, Third Revise I Clause, Vol. U. Obs.

Catalog of Faint Red Stars" (Lee et al^{A28-A30}) designated by DO, the Revised New General Catalog (Sulentic and Tifft^{A31}) for NGC objects, Catalog of HII Regions (Sharpless^{A32}), and the Index Catalog of Dryer. Additional associations are obtained from the CIO.

A6. COLUMN 13 - COMMENTS

Comments on the source are given in this column, including alternative names. The class of object is listed if the association is with an NGC source. If appropriate, the type of galaxy is also listed. Sources measured to be extended on the order of 5 arc min or greater are designated by EO, those of marginal extent by E?.

A7. COLUMN 14 - OBSERVATION LOG

This is a three-element code that outlines the observational record for the entry. The first character pertains only to previous AFGL sources. A "C" designates that the source was detected on a SPICE or FIRSSE flight in a common color. If this is not the case the maximum number of times the source was seen in a common color as listed in the AFGL catalog is given. The second character describes the observation within a SPICE or FIRSSE flight. A "2" means that the source was seen twice in a common color on the same flight, and a "0" denotes no common color confirmation. If the object was rescanned but was not confirmed an asterisk "*" designates that the rescan region contained optical contamination or has a calculated signal-to-noise less than 3; a question mark denotes that the calculated signal-to-noise was between 3 and 5 on rescan or the confirming detector was at the end of the array. An S or F means that the source was only scanned once on a SPICE or FIRSSE flight, respectively. Flight-to-flight obser-

A28. Lee, O.J., Baldwin, R.L., and Hamlin, D.W. (1943) <u>Dearborn Catalog of Faint Red Stars Titanium Oxide Stars in Zones -4.5 to +13.50</u>, Ann. <u>Dearborn Obs. Northwestern U. V(Part 1A)</u>.

A29. Lee, O.J., and Bartlett, T.J. (1944) <u>Dearborn Catalog of Faint Red Stars</u>
<u>Titanium Oxide Stars in Zones +13, 50 to +40, 57</u>, Ann. Dearborn Obs.
Northwestern U. V(Part 1B).

A30. Lee, O.J., Gore, G.D., and Bartlett, T.J. (1947) <u>Dearborn Catalog of Faint Red Stars Titanium Oxide Stars in Zones 40.57 to 4907</u>, Ann. <u>Dearborn Obs.</u>, Northwestern U. IV(Part 1C).

A31. Sulentic, J.W., and Tifft, W.G. (1972) The Revised New General Catalog of Non-Stellar Astronomical Objects, V. of Ariz., Tucson, Ariz.

A32. Sharpless, S. (1959) A catalog of HII regions, Astrophys. J. Suppl. IV:257.

vations are denoted by the last character. The asterisk and question mark have the same meaning as for the second character. A number means that the entry is a combination of a FIRSSE and SPICE measurement: "2" denotes a common color with values within 60 percent, "3" a common color with values greater than 60 percent of each other, and "4" no common color.

A8. COLUMNS 15 AND 16 - GALACTIC COORDINATES

The galactic longitude and latitude are listed in columns 15 and 16, respectively, to the nearest tenth of a degree.

Table Of Observations

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Table Of Observations

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(11) m(20) m(27)	.5 .2 -1.4 .2 .4 .2 .4 .2 .1 .6 .3 .4 .2 .1 .7 .2 .2 .9 .3 .4 .2 .2 .2 .9 .3 .4 .4 .2 .2 .2 .9 .3 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	. 4 C M3 1.2 . 2 . 2 . 1 . 2 . 3 M5 M2 M2 M2 M2 M2 M2 M2 M2 M3 M5 M3 M5 M3 M5 M3 M5 M3 M5 M3 M5 M3	.4 C .4.9 .2 .5.4 .3 M5 .1 .2 .1.6 .2 .85 .4 .3 M5 .2 .2 .2 .2 .2 .2 .3 .3 .4 .4 .2 .1.8 .2 .2 .5 .0 .3 .4 .4 .5 .1 .8 .2 .1 .5 .0 .3 .4 .4 .5 .1 .8 .2 .1 .5 .0 .3 .4 .4 .4 .5 .1 .8 .2 .1 .5 .0 .3 .4 .4 .4 .5 .1 .8 .2 .1 .5 .0 .3 .4 .4 .4 .5 .1 .8 .2 .1 .8 .2 .1 .5 .0 .3 .4 .4 .4 .5 .1 .8 .2 .1 .5 .0 .3 .4 .4 .4 .5 .1 .8 .2 .1 .5 .0 .3 .4 .4 .4 .5 .1 .4 .4 .5 .1 .4 .4 .5 .4 .4 .4 .5 .1 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4	2.3.2 -2.1.2 -2.2.3 MO I .4 C -8 .2 -2.2 .3 MO I 1.4 .2 -1.9 .2 MO I .3 C -1.9 .2 MS I	1.4 .2 -1.5 .2 C6. 1.6 C6 .2 MA 1.1 .2 -1.9 .2 MA 2 .2 -3.4 .2 -3.5 .3 C7, M6.
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1950) Dec(1950) Ref	27.5 +61 45 47 SPC 43.1 + 5 25 7 SPC 15.8 +69 22 52 SPC 36.2 +60 20 34 SPC 47.6 +45 44 7 SPC 55.5 +29 2 7 SAO 32.0 +17 18 7 SAO 32.1 -12 40 4 SAO 44.2 +60 30 4 SPC	2.0 +61 46 29 FIR 8.0 +60 49 36 IRC 0.0 +60 32 42 IRC 1.9 +55 41 23 SAO 12.0 -45 39 6 GIO 19.0 +59 1 24 IRC 25.5 +34 51 19 SAO 50.0 +53 48 24 SAO	47.1 - 8 28 17 SAO 4.9 + 9 7 58 SAO 15.6 +64 7 51 SAO 59.6 +18 7 49 SAO 19.0 +54 26 24 IRC 21.4 +60 28 54 SAO 59.0 - 9 5 46 SAO 6.3 +14 24 33 SAO 27.2 + 4 18 1 SAO	39.8 +11 6 37 SPC 6.5 +38 14 12 SPC 18.0 +62 54 6 IRC 32.5 +60 17 22 UCS 19.6 - 13 46 42 AGL 19.6 - 13 46 42 AGL 19.9 +44 29 18 SPC 21.2 +79 13 26 SAO	22.0 +60 16 15 KUS 39.8 + 3 53 41 5AO 9.6 +53 18 44 SAO 52.1 +75 36 42 SAO 57.8 +38 38 53 SAO 7.0 +55 32 6 IRC 31.3 +58 19 19 LSK 39.0 +60 18 54 IRC 4.9 - 6 16 51 SAO 9.0 -47 30 AGL
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1) m(20) m(27) Spec	2	2 1.19 2.2 2.2 1.19 2.2 1.19 2.2 1.19 2.2 1.19 2.2 1.19 2.2 1.19 2.2 1.19 2.2 1.25 2.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3	.3 .2 M7 1.6 .4 M8 -1.3 .2 -1.6 .2 -2.7 .3 K5 -1.4 .2 -1.0 .2 -2.1 .3 M7 -2.3 .3	3 -5.5 .4 M8E 1.6 .2 M7 1.8 .2 M6 2 -1.1 .2 X3 2 -1.6 .2 -2.6 .3 M3	2 -1.2 C K5 G K5 G K5 G C K4 RE C C C C C C C C C C C C C C C C C C
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950) Ref m(4) m(11) m(20) m(27) Spec	47 C104 .3 -1.9 .3 -2.5 .4 M7E 48 AGL 19 SAO6 .2 -1.5 .4 -3.2 .4 25 SAO 0.0 .3 -1.2 -1.5 .2 -1.1 .3 C5. 37 SAO 1.3 .4 -3.0 .5 C5. 37 SAO 1.1 .3 .5 .5 .6 .3 .8 .4 53 SAO 1.1 .3 .5 .6 .3 .5 .6 .8 M4 53 SAO 1.1 .3 .5 .6 .8 .5 .8 M4 53 SAO 1.1 .3 .5 .6 .8 .8 M4	2 SPC6 .3 -1.2 .2 -1.9 .2 -2.6 .3 M5 3 6 AGL6 .3 -1.2 .2 -2.2 .2 -4.3 .3 M5 6 AGL6 .3 -1.2 .2 -2.2 .2 -4.3 .3 M5 8 18 SPC 9.5 C .2 .2 -1.4 .2 8 26 SAO 0.0 .3 .1 C 8 26 SAO -1.0 .3 -1.4 .2 -1.9 .2 -2.5 .3 M2 8 26 SAO -1.0 .3 -1.4 .2 -1.5 .2 -2.5 .3 M5 8 32 SAO -1.0 .3 -1.4 .2 -1.5 .2 -2.5 .3 M5 8 35 SAO -1.0 .3 -1.4 .2 -1.5 .2 -2.5 .3 M5 8 35 SAO -1.0 .3 -1.3 .2 -1.5 .2 -2.5 .3 M5 8 35 SAO -1.0 .3 -1.4 .2 -1.5 .2 -2.5 .3 M5 8 36 SAO -1.0 .3 -1.4 .2 -1.5 .2 -2.5 .3 M5 8 37 SAO -1.0 .3 -1.3 .2 -1.5 .2 -2.5 .3 M5 8 38 SAO -1.0 .3 -1.3 .2 -1.5 .2 -2.5 .3 M5 8 38 SAO -1.0 .3 -1.3 .2 -1.5 .2 -2.5 .3 M5 8 38 SAO -1.0 .3 -1.3 .2 -1.5 .2 -2.5 .3 M5 8 38 SAO -1.0 .3 -1.3 .2 -1.5 .2 -2.5 .3 M5 8 39 SAO -1.0 .3 -1.3 .2 -1.5 .2 -2.5 .3 M5 8 30 SAO -1.0 .3 -1.3 .2 -1.5 .2 -2.5 .3 M5 8 30 SAO -1.0 .3 -1.3 .2 -1.5 .2 -2.5 .3 M5 8 30 SAO -1.0 .3 -1.3 .2 -1.5 .2 -2.5 .3 M5 8 30 SAO -1.0 .3 -1.3 .2 -1.5 .3 .3 M5 8 30 SAO -1.0 .3 -1.3 .3 .4 .5 .4 .5 .5 .3 M5 8 30 SAO -1.0 .3 -1.3 .3 .4 .5 .5 .3 M5 8 30 SAO -1.0 .3 -1.3 .4 .5 .5 .3 M5 8 30 SAO -1.0 .3 -1.3 .4 .5 .5 .5 .3 M5 8 30 SAO -1.0 .3 -1.3 .4 .5 .5 .5 .3 M5 8 30 SAO -1.0 .3 -1.3 .4 .5 .5 .5 .3 M5 8 30 SAO -1.0 .3 -1.3 .4 .5 .5 .5 .3 M5 8 30 SAO -1.0 .3 -1.3 .5 .5 .3 M5 8 30 SAO -1.0 .3 -1.3 .5 .5 .3 M5 8 30 SAO -1.0 .3 -1.3 .5 .5 .3 M5 8 30 SAO -1.0 .3 -1.3 .5 .5 .5 .3 M5 8 30 SAO -1.0 .3 -1.3 .5 .5 .5 .3 M5 8 30 SAO -1.0 .3 -1.3 .5 .5 .3 M5 8 30 SAO -1.0 .3 -1.3 .5 .5 .5 .3 M5 8 30 SAO -1.0 .3 .4 .5 .5 .5 .5 .5 .3 M5 8 30 SAO -1.0 .3 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	5 36 IRC 1.3 .3 .3 .2 M7 M6 M6 M6 M7	5 42 1RC -1.7 .3 -4.2 .3 -5.5 .4 M8E 5 58 FIR -1.7 .3 -4.2 .3 -5.5 .4 M8E 3 28 FIR -1.0 .2 -1.1 .2 M7 53 SAO .7 .4 -1.0 .2 -1.1 .2 K3 11 SPC 4 30 SAO 1.4 .3 -6 .2 -1.6 .2 -2.6 .3 M3	8 58 5AO -1.3 .3 -1.6 .3 -1.2 C
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SOEGN	DO 28391 DO 28489 47 ERI GC 5577 IU TAU ALF TAU 58 PER	UU ERI T CAM 83 ERI MGC 1624 DM ERI P CAE	BZ TAU DO 10703 DO 10715 SVS 100406 ST CAM GC 5868 GC 5861	11 TAU V720 TAU SVS 6136 OMI1 ORI 5 ORI AB AUR DO 28749	SHARP. 217 P16 ORI DO 28769 TX CAM R LEP
¥	1451 1452 1457 1454		1533	1556 1562 1580	1577 1601 1572 1607
TMSS	50121 - 10070 - 10071 30090 20087 - 30033	-10072 -30038 -10054 -10073 -10075 -20059	10068 20089 30093 -10077 60145 40099	30098 30099 40101 10072 64 60149	30100 65 70057 -20064 -10080
AFGL	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	00000000000000000000000000000000000000	622 622 622 622 633 633 633	5128 639 643 644 5129 647 648 652	654 5131 5132 659 663 661 664 667
Spec Type	M	M7 55.7.5 85.7.5 M7E 111 M2 111 M4 G	M4 M7 M6 M6 C5.3 K4 II	C7,4 M7 C8,1 M3S M1 G K2 III	K3 II K2 II K5 III M8.5 C7,46
22)				ო ო ს	-0 - 0
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20)	• • • • • • • • • • • • • • • • • • •	 			
(11) m(20)	2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2	2	2.5 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	0.0 E. 24. 0.0 4. 0.4. 1.0 6. 6. 1.0 6. 6. 1.0 6. 6. 1.0 6. 6. 1.0 6. 6.	1.7.4 -1.5.2 -2.0.2 -3. 3.0.3 -5.0.2 -4. -2.7.2 -4.
Ref m(4) m(11) m(20)	SAO . 6 .3 -1.9 .2 -1.9 .2 -2. SAO 6 .3 -1.9 .2 -1.9 .2 -2. SAO 5 .3 -2.1 .4 -1.9 .2 -3. SAO . 3.2 .3 -3.2 .3	SAO 1.2 4 1.1 W SAO 1.2 6 .3 1.2 W IRC -1.3 -3 -3.2 1.7 .2 SAO 8 .3 -1.4 .4 -1.1 .2 SPC 8 .3 -1.4 .4 -1.1 .2 SPC 18 .4 -1.1 .2 SPC 18 .4 -1.1 .2 SPC 19 .3 -1.0 .3 IRC 0.0 .3 -1.0 .3 IRC 1.5 .3 -1.7 .4 IRC 1.5 .3 -1.7 .4	EIC 1.2 .3 -1.2 .4 -1.0 .2 .5 .5 .3 .4 .8 .2 .5 .5 .3 .7 .6 .5 .5 .3 .7 .6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	FIR SAO 2.0 C 5.2 2.2 SAO 6.4 C. 0.2 C 2.9 2.5 SAO 6.4 C. 0.2 C 2.0 2.0 SAO 6.4 C. 0.2 C 2.0 2.0 SAO 6.4 SAO 6	FIR -1.0 .4 -1.7 .4 -1.5 .2 -3. FIR SPC SAO 1.1 .4 SAO 1.5 .4 SAO 1.5 .4 SAO 1.5 .4 SAO 1.5 .4 SAO -1.6 .3 -4.1 .2 -5.0 .2 -4. SAO -1.6 .3 -4.1 .2 -5.0 .2 -4. FIR -1.9 .3 -3.0 .3 -3.1 .4 FIR
(1950) Ref m(4) m(20)	36 29 SAO .6 .3 -1.9 .2 -1.9 .2 -2. 1.9 .2 -2. 1.9 .2 -2. 1.9 .2 -2. 1.9 .2 -3. 2 SAO .4 .3 -2.1 .4 -1.9 .2 -3. 24 42 IRC .5 .3 -4 .4 -7 .2 -3. 24 37 SAO .3.2 .3 -3.2 .3 -3.2 .2 -3. 39 49 SAO 11 .3 -3.2 .3 -3.2 .2 -3.	22 20 EIC 1.6 .3 1.2 W 1.1 W 3 12 IRC -1.1 .3 -3 .2 -7 .2 2 24 2 SAG 1.2 S 3 -1.4 .4 -1.1 .2 25 30 SPC 8 .3 -1.4 .4 -1.1 .2 25 30 AGL 8 .3 -1.0 .3 -1.0 .3 45 58 SAG -1.5 .3 -1.0 .3 -1.0 .3 18C -1.5 .3 -1.0 .3 -1.0 .3 18C -1.5 .3 -1.9 .4	2 46 59 EIC 1.2 .3 -1.2 .4 -1.0 .2 .2 .3 .4 .8 .2 .5 .3 .4 .8 .2 .5 .3 .4 .8 .2 .5 .3 .4 .8 .2 .2 .2 .2 .3 .4 .4 .8 .2 .2 .2 .2 .3 .4 .5 .3 .4 .5 .3 .7 .7 .5 .9 .2 .2 .2 .2 .4 .3 .4 .5 .3 .6 .5 .3 .6 .5 .3 .6 .5 .3 .6 .5 .3 .4 .5 .3 .4 .2 .2 .2 .2 .2 .2 .2 .3 .2 .2 .3 .4 .3 .4 .3 .1 .2 .2 .3 .2 .2 .2 .3 .2 .2 .3 .2 .2 .3 .2 .2 .3 .2 .2 .3 .2 .2 .3 .2 .2 .3 .2 .2 .3 .2 .2 .3 .2 .2 .3 .2 .2 .3	16 36 FIR 26 36 SAO . 2 . 3 0.0 C - 5 . 2 25 12 IRC 2.0 C 0.0 C - 5 . 2 25 22 SAO 1.6 C . 0.0 C . 3 37 43 FIR - 7 . 3 25 38 SAO . 6 . 4 - 7 . 2 28 21 CIO 3.0 C 0.2 C - 2.0 . 2 - 2. 29 4 SAO . 7 . 3 . 2 . 2 . 2	5 20 SAO -1.0 .4 -1.7 .4 -1.5 .2 -3.5 37 FIR -1.5 .2 -3.5 53 51 SPC -1.1 .4 -1.5 .2 -3.0 SAO -1.1 .4 SAO -1.5 .4 -1.5 .3 -4.1 .2 -5.0 .2 -4.5 51 25 FIR -1.6 .3 -3.0 .3 -3.1 .4 -5.1 25 FIR -1.6 .3 -3.0 .3 -3.1 .4 -2.7 .2 -2.
1950) Ref B(4) B(11) B(20)	29 SAO . 6 . 3 -1.9 . 2 -1.9 . 2 -2. 5 SAO . 4 . 3 -2.1 . 4 -1.9 . 2 -3. 42 SPC . 5 . 3 -4.4 -7 . 2 -3. 51 SAO -3.2 . 3	20 EIC 1.6 .3 1.2 W 1.1 W 1.2 IRC 1.2 SAO 1.2 SAO 1.3 -1.4 .4 -1.1 .2 2 SAO 1.9 SPC 8 .3 -1.4 .4 -1.1 .2 2.0 .2 -3. 24 IRC 0.0 .3 -1.0 .3 58 SAO 1.5 .3 -1.7 .4 .4 .1 .1 .2 .3 .3 .1 .5 .3 .3 .1 .5 .3 .3 .1 .5 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	9 WYO 3.0 C 12.5 .3 14.8 .2 15.2 14.8 12 18.2 17.2 .3 17.2 4 11.0 .2 2 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.2	6 36 FIR 6 36 SAO 5 12 IRC 5 22 SAO 7 43 FIR 5 33 SAO 6 36 SAO 7 4 38 SAO 8 21 CIO 8 24 SAO 6 4 5 6 7 3 7 3 7 2 2 7 2 7 2 7 3 7 3 7 3 7 3 7	20 SAO -1.0 .4 -1.7 .4 -1.5 .2 -3. 37 FIR -1.5 .2 -3. 51 SPC -2.0 .2 -3. 20 SAO 1.1 .4 -2.0 .2 -3. 44 SAO 1.5 .4 -2.0 .2 -4. 49 SAO 1.5 .3 -4.1 .2 -5.0 .2 -4. 47 SAO -1.6 .3 -3.0 .3 -3.1 .4 -2.7 .2 -2.

Table Of Observations

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-	162.8 149.6 165.0 157.5 174.3 162.4 222.7 222.7 223.2	203.5 164.5 143.0 212.9 187.8 180.5 237.6 175.1	1699 1699 1699 1699 1699 1699 1699 1699	219.7 174.2 173.4 165.9 165.9 171.5 169.9 169.9
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Names	EPS AUR BET CAM ZET AUR EL AUR DO 28943 T LEP W OR1	NGC 1788 DO 28987 UX CAM GC 6277 DO 993 SVS 507 NV AUR DO 11103 RX LEP	SHARP. 228 RHO GRI DO 1025 DO 1025 DO 1031 UX AUR BET GRI AE AUR R AUR PU AUR 16 AUR DO 1049 DO 29132 NGC 1892	UV AUR IC 0410 SHARP. 236 V535 ORI GC 6640 EX ORI
Ä	1605 1603 1612 1648 1654	1693	1698 1703 1713 1707 1722 1722 1720	
TMSS	40109 60151 40110 50135 40111 -20066 30102 -20067	40114 70059 10078 20100 -30042E 50137 30105	50138 -10085 50139 10081 50141 50141 40119 30107 60155	-20069 30110 71 71 40126
AFGL	670 671 674 672 5135 681 682 683 688	5136 692 693 694 698 697 700 700	5137 706 707 709 7109 7112 712 712 722 722 722 728 728 728 729 729 729 729 729 729 729 729 729 729	733 735 5139 5140 5141 7051 740 744
Type	H H H H H H		нн < н н	w .
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) m(27) S	A8E GG 1 KS 1 C5.4 3.9 .3 MS M7E C5.4 MS 1 KS 1	3.1.3 M M G M M T M M T M M T M M T M M T M M T	2. 0. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	
27) 5	A8E G0 I K5 I K5 I C5.4 -3.9 .3 M5 M7E C5.4 K5 I	13.1.3 M6 M6 M6 M6 M10	1. 2. 2. 2. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3.	-2.5.3 -2.5.3 -2.7.3 -2.7.3 -2.7.3 -2.7.3
) m(27) S	.5 C A8E .2 C G G .2 .2 .2 C 5.4 .9 .2 A5 .3 MS .9 .2 M7E .9 .2 M7E	.5 .2 -3.1 .3 M6 M6 M6 M1	A	.1 .2 .2 .2 .3 .3 .2 .2 .2 .2 .2 .3 .3 .6 .2 .2 .2 .3 .3 .4 .4 .5 .5 .3 .5 .5 .3 .5 .5 .5 .3 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
11) m(20) m(27) S	.8 C .5 C G0 I .3 C .2 C K5 I .1 .2 -1.2 .2 -3.9 .3 M5 .8 .3 -9 .2 M7E .9 .4 -2.3 .2 K5 I M55 I	.2 .2 M6 .2 .2 M6 .0 C .4 C M7 1.5 .3 M0 2.4 .2 -4.0 .2 -4.4 .3 M10 2.4 .3 -4.0 .5 M6	.3 M 6.5	1.3 .4 -1.1 .2 -2.5 .3 -1.1 .2 -2.5 .3 -1.6 .2 -2.7 .3 M4 -1.7 .2 M7 G
(4) m(11) m(20) m(27) S	1.1 .4 .8 C .5 C G0 I 1.4 .39 C .2 C G0 I 7 .31 .2 -1.2 .2 C .5 K5 I .5 .31 .2 -1.2 .2 C5.4 .5 .3 -1.8 .3 C .2 C5.4 1.3 .4 -1.9 .4 -2.3 .2 M5 1.3 .4 -1.9 .4 -2.3 .2 M5 1.4 .3 -1.2 .4 K5 I	1.4 .3 .2 .2 .2 .8 M6 .1.5 .4 .1 .3 M6 .1.2 .4 .2 .4 .2 .4 .2 .4 .3 M10 .1.2 .4 .2 .4 .3 M10 .1.2 .4 .3 .4 .3 .4 .3 .4 .5 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8	5.9 C 0.4 C -1.9 .2 -3.0 .3 K3 II C 0.4 C -1.9 .2 -3.0 .3 K3 II C 0.6 .3 .3 K3 II C 0.6 .3 .3 .3 K3 II C 0.6 .3 .3 .3 .3 .3 K3 II C 0.6 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	.1 .32 C M7 .3 .4 -1.3 .4 -1.1 .2 -2.5 .3 -1.1 .2 -2.5 .3 -1.6 .2 -2.7 .3 M4 .6 .4 -1.7 .2 M7 G .6 .3 -1.7 .2 M7 G
350) Ref m(4) m(11) m(20) m(27) S	5 5 SAO 1.1 .4 .8 C .5 C GO I GO I S SAO 1.1 .4 .3 C .2 C GO I GO I S SAO 1.4 .3 -3 C .2 C C .4 K5 I S SAO -7 .3 -1 .2 -1.2 .2 C .5 C C5.4 S S I S SAO -6 .3 -1 .8 .3 -9 .2 MS MS	6 50 FIR 6 29 SAO 1.4 .3	4 FIR 5.9 C 0.4 C -1.9 .2 -3.0 .3 K3 I S S S S S S S S S S S S S S S S S S	24 IRC 1.1 .32 C M7 51 SAO 1.3 .4 -1.3 .4 -1.1 .2 C8.1 14 FIR -1.1 .2 -2.5 .3 24 IR -1.2 .4 -1.3 .4 -1.1 .2 25 SAO 1.6 .3 -1.7 .2 M4 19 SAO 1.6 .4 -1.7 .2 M7 G 56 WYO 8 .4 -1.6 .2 M7 G
c(1950) Ref m(4) m(11) m(20) m(27) S	3 45 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	3 26 50 FIR 68 36 29 SAO 1.4 .3 68 36 29 SAO 1.4 .3 72 .2 .2 8 8 36 29 SAO 1.4 .3 8 8 36 29 SAO 1.2 .4 .3 8 8 36 29 SAO 1.2 .4 .3 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	77 23 4 FIR 5.9 C 0.4 C -1.9 .2 -3.0 .3 K3 I	17 55 24 IRC 1.1 .32 C 8.1 33 28 14 FIR 1.3 .4 -1.1 .2 -2.5 .3 33 28 14 FIR 1.2 2 -2.5 .3 14 24 24 FIR 1.6 .3 -1.6 .2 -2.7 .3 M4 436 30 IRC 1.6 .3 -1.7 .2 M7 6 11 29 SAO 6 .3 -1.7 .2 M7 6 11 29 SAO 6 .3 -1.7 .2 M7 6 0 40 48 AGL 1.5 .3
350) Ref m(4) m(11) m(20) m(27) S	45 5 SAO 1.1 .4 .8 C .5 C GO I GO I B SAO 1.4 .3 1.9 C .2 C GO I GO	3 26 50 FIR 68 36 29 5AO 1.4 .3 M6 68 36 29 5AO 1.4 .3	55.4 +37 23 4 FIR 5.9 C 0.4 C -1.9 .2 -3.0 .3 K3 I 12.9 + 0 30 12 SAD 1.2 .4	7 55 24 IRC 1.1 .32 C

Table Of Observations

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-	161.4 173.5 177.0 182.7 173.3 187.8 149.1 175.1 223.6	2007.6 173.9 173.9 187.1 187.1 187.1 187.2 239.9	147.5 107.5 177.3 177.3 200.9 2008.9 2008.9 145.5	157.2 196.2 208.5 171.2 209.0 182.4 208.0 208.9	2009.2 2008.9 176.5 2005.9 182.5 167.7 164.5
å	35-3-5-6-6	10,22,12,12,12,12,12,12,12,12,12,12,12,12,	4	0 0	2 1 2 1 2 1 1 1 2 1 1 1 2 1 1 2 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1
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N D E GN	DD 29288 S AUR DO 11262 PHI AUR 17 TAU 17 CAM AD 11278 BET LEP	S ORI 31 ORI NGC 1931 DV TAU V539 ORI HFE 3 119 TAU EPS COL	DO 29388 DO 1158 V702 ORI ALF LEP V723 ORI V979 ORI IS ORI	DD 19463 SVS 6229 NGC 1977 IX AUR M 42 CQ TAU V567 ORI V415 ORI V836 ORI	V659 ORI V850 ORI NGC 1985 X ORI GP TAU HARO 13A
Ē	1805 1816 1802 1829	1834 1845 1862	1865	1866	
TMSS	50145 30114 30115 20106 30116 20107 60157 40130	74 75 20111 20112	70063 10088 -20073	50148 10090 10090 10093	80 20116 50149
AFGL	746 748 749 751 752 752 753 755	757 759 759 5142 5144 761 767	768 769 769 7147 771 772 5150 776	777 780 781 782 779 5151 5152 783 5153	5155 5156 5157 786 788 787 5158 4054 4433\$
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Spec	MS C C M M1 18 M M1 11 M M6 11 GS 11	M K 4 II: MG MG K1 II:	F 66	MO G M5 M7 F2E I	8 8 8 0 7 9
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) m(20) m(27) Spec	M	.3 -2.2 .2 -2.0 .3 M7E -1.7 .2 -3.3 .3 .4 -2.5 .2 -3.9 .3 M6 -1.2 .2 -3.9 .3 M6 -3 -1.8 .2 -1.7 .3 M2 -4 -1.7 .3 M2 -4 -1.7 .3 M2 -4 -1.8 .2 -1.7 .3 M2	-1.2 .2 -2.0 .3 M6 -1.6 .2 -3.4 .3 -1.4 .2 -3.9 .3 -2.6 .2 -3.9 .3 -1.1 .2 -3.2 .3	.3 -2.3 .2 -4.6 .3 M5 G G G G G G G G G G G G G G G G G G	. 4. 4
m(20) m(27) Spec	M	3 -2.2.2 -2.0.3 M7E -1.4.2 -3.3.3 3	-1.2.2 -2.0.3 M6 -1.6.2 -3.4 .3 M4 -2.4.2 -3.9.3 F0 I	3 -2.3 .2 -4.6 .3 M5 G G G G G G G G G G G G G G G G G G	1.3 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2
) m(11) m(20) m(27) Spec	.3 -1.1 W .8 W888	1.7 .3 -2.2 .2 -2.0 .3 M7E -1.7 .4 -2.5 .2 -3.9 .3 M6 -1.7 .4 -1.2 .2 -3.9 .3 M6 -1.5 .3 -1.8 .2 -1.7 .3 M2 -1.1 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4	.3 -1.2 .2 -2.0 .3 M6 -1.6 .2 -3.4 .3 F0 I -7 .4 -2.6 .2 -3.9 .3 -1.3 .3 -1.1 .2 -3.9 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	2.4 .3 -2.3 .2 -4.6 .3 M5 5.1 .3 <-8.6 .2 <-9.9 .3 F2E 1.9 C -6 .2 -3.9 .3 F2E -4.2 .2 -3.1 .3 -2.2 .2 -3.1 .3 -2.2 .2 -3.1	.8 .4 .2.2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .
11) m(20) m(27) Spec	3 1.1 W .8 W .2.1 .3 CM. I 8 W	3 -1.7 .3 -2.2 .2 -2.0 .3 M7E -1.4 .2 -3.3 .3 .4 -1.7 .4 -2.5 .2 -3.9 .3 M6 -1.2 .2 -3.9 .3 M6 -1.2 .2 -3.2 .3 M6 -1.5 .3 -1.8 .2 -1.7 .3 M2 3 -1.5 .3 -1.8 .2 -1.7 .3 M2	-1.2.2 -2.0.3 M6 -1.6.2 -3.4.3 F0 I -2.4.2 -3.9.3 -7.4 -2.6.2 -3.9.3 -1.3.3 -1.1 2 -3.2.3	AND G -2.4 .3 -2.3 .2 -4.6 .3 M5 <-5.1 .3 <-8.6 .2 <-9.9 .3 M7 1.9 C -6 .2 -3.9 .3 F2E -6 .2 -3.9 .3 -4.2 .2 -3.1 .3 -2.2 .2 -3.1 .3	1.3 .2 .2 .2 .2 .1 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2
(4) m(11) m(20) m(27) Spec	.4 .3 1.1 W .8 W8 M	.5 .3 -1.7 .3 -2.2 .2 -2.0 .3 M7E -1.4 .2 -3.3 .3 K4 -1.7 .2 -3.9 .3 M6 -2 .3 -1.7 .4 -1.2 .2 -3.9 .3 M6 -1.2 .2 -3.9 .3 M6 -1.2 .2 -3.2 .3 M6 -1.2 .3 -1.5 .3 -1.8 .2 -1.7 .3 M2 -1 .3 -1.1 .4 K1	.4 .3 .4 .4 .4 .2 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .3 .1 .1 .2 .3 .3 .3 .4 .3 .4 .3 .4 .3	1.3 .3 1.5 .4 -2.4 .3 -2.3 .2 -4.6 .3 M5 1.0 .3 1.1 .3 <-5.1 .3 <-8.6 .2 <-9.9 .3 M7 4.6 C 1.9 C -6 .2 -3.9 .3 F2E 1.7 .3 -4.2 .2 -3.1 .3 -2.2 .3 .1 .3	.4 .3 -1.8 .4 -2.2 .2 .2 .3 .4 .3 -1.8 .4 -2.1 .2 .2 .2 .2 .2 .1 .3 .2 .4 .2 .1 .3 .2 .4 .2 .1 .3 .2 .1 .3 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
950) Ref m(4) m(11) m(20) m(27) Spec	0 36 IRC	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	24 IRC 1.4 .3 -1.2 .2 -2.0 .3 M6 47 FIR -1.3 .3 -1.4 .2 -3.4 .3 F0 I 20 FIR -1.3 .3 -2.4 .2 -3.9 .3 F0 I 5 FIR -1.7 .4 -2.6 .2 -3.9 .3 5 FIR -1.3 .3 -1.3 .3 -1.1 .2 -3.2 .3	53 SAD 1.3 .3 9 SAD 3.4 26 AGL 1.5 .4 -2.4 .3 -2.3 .2 -4.6 .3 M5	16 FIR 11 FIR 6 FIR 6 FIR 7 14 .3 -1.8 .4 -2.1 .2 6 IRC1 .3 -1.7 .4 -2.0 .2 -2.1 .3 26 FIR 30 AGL 42 AGL 42 AGL 44 AGL 45 AGL 46 AGL 47 AGL 48 AGL 49 AGL 40 AGL 42 AGL 44 AGL 45 AGL 46 AGL 47 AGL 48 AGL 49 AGL 40 AGL 40 AGL 41 AGL 42 AGL 43 AGL 44 AGL 45 AGL 46 AGL 47 AGL 48 AGL 48 AGL 49 AGL 40 AGL 40 AGL 41 AGL 42 AGL 43 AGL 44 AGL 45 AGL 46 AGL 47 AGL 48 AGL 4
(1950) Ref m(4) m(11) m(20) m(27) Spec	8 40 36 IRC 1.4 .3 1.1 W .8 W .8 M IS E S S IRC 1.4 .3 1.1 W .8 W .8 W IS E S S IRC1 .3 -1.6 .4 -1.7 .2 -2.1 .3 C W IS E S S S S S S S S S S S S S S S S S	4 3 52 SAO7 .3 -1.7 .3 -2.2 .2 .2 .2 .0 .3 M7E 45 55 FIR -1.7 .3 -1.7 .2 -2.2 .2 -2.0 .3 M7E 413 56 FIR -1.2 .3 -1.7 .4 -1.2 .2 -3.9 .3 M6 439 45 58 FIR -1.2 .3 -1.7 .4 -1.2 .2 -3.2 .3 M8 53 32 SAO -1.2 .3 -1.5 .3 -1.8 .2 -1.7 .3 M2 5 30 22 SAO 1.1 .3 -1.5 .3 -1.8 .2 -1.7 .3 M2	55 1 24 IRC 1.4 .3	8 40 9 5A0 .3 .4 M5 4	5 28 16 FIR 5 6 11 FIR 1 48 0 EIC .4 .3 -1.8 .4 -2.1 .2 24 58 6 IRC1 .3 -1.7 .4 -2.0 .2 -2.1 .3 30 40 26 FIR 47 57 30 AGL .6 .4 -5.1 .6 .2 7 4 40 AGL .2 .4 -2.9 .2 -2.7 .3 46 43 42 IRC -2.0 W -1.9 .3 -3.3 .2 -3.1 .3
Dec(1950) Ref m(4) m(11) m(20) m(27) Spec	0 +48 40 36 IRC	7 - 4 43 52 SAO7 .3 -1.7 .3 -2.2 .2 .2 .2 .3 .3 K4 5 - 1 7 48 SAO .5 .3 .3 -1.7 .3 -2.2 .2 .2 .2 .0 .3 K7 3 +54 11 16 SPC 10 +34 13 56 FIR 2 + 18 31 26 SAO 1.2 .3 -1.7 .4 -2.5 .2 -3.9 .3 M6 3 - 4 55 58 FIR 1.2 .3 -1.7 .4 -1.2 .2 -3.2 .3 M2 8 + 18 33 32 SAO -1.2 .3 -1.5 .3 -1.8 .2 -1.7 .3 M2 2 -35 30 22 SAO 1.1 .3 -1.1 .4 K1	0 +65 1 24 IRC 1.4 .3	NO G 1.3 .3 1.4 + 8 40 1.5 .4 1.5 .4 1.6 .4 1.7 .3 1.7 .4 1.8 .4 1.9 .5 1.9 .6 1.1 .3 1.9 .6 1.1 .3 1.0	5 28 16 FIR 5 6 11 FIR 1 58 6 FIR 1 48 0 EIC
(1950) Ref m(4) m(11) m(20) m(27) Spec	0 +48 40 36 IRC 1.4 .3 1.1 W .8 W .8 M .8 M .8 M .8 M .8 M .8 M .8	7 - 4 43 52 SAO7 .3 -1.7 .3 -2.2 .2 .2 .2 .3 .3 K4 55 F1R	0 +65 1 24 IRC 1.4 .3	+54 23 53 SAO 1.3 .3	6 - 5 6 11 FIR 6 - 5 6 11 FIR 9 +31 58 6 FIR 1 - 2.2 .2 9 +31 58 6 FIR 1 - 4 2 58 6 IRC 1 - 3 - 1.7 .4 - 2.0 .2 - 2.1 .3 1 +30 40 26 FIR 0 - 47 57 30 AGL 6 - 7 4 40 AGL 0 +46 43 42 IRC - 2.0 W - 1.9 .3 - 3.3 .2 -3.1 .3

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-	206.8 217.8 172.0 179.5 173.6 216.3 212.2 176.9	180.2 2011.6 206.4 173.7 173.7 179.6 171.1 171.0 171.0	206.9 206.9 280.2 153.4 143.4 153.6 183.8 183.8	203.4 1673.4 205.3 205.3 226.3 173.4 150.4 182.4	225.8 2041.3 2041.4 144.9 184.9 171.8 205.8 205.8
sqo	E	65 22 22 22 22 22 22 22 22 22 22 22 22 22	52112241121	E0 22 22 22 22 22 22 22 22 22 22 22 22 22	12112121121
Comments	w w	SHARP. 240 GALAXY	GALAXY GALAXY	TI TI	
Names	SIG ORI RW LEP RW AUR AW AUR SHARP. 233 SVS 6369 ND AUR SHARP 235A	AB TAU V902 ORI ZET ORI SHARP. 235 DO 1241 NGC 2060 SZ AUR DO 11484 U AUR	NGC 2024 NGC 2024 NGC 2079 RED STAR TU TAU Y TAU NGC 2105	NGC 2064 NGC 2071 UPS AUR DO 11629 TZ CAM SHARP. 242	DEL LEP BET COL 56 ORI BH CAM BC TAM DO 11680 GC 7440 ALF ORI
£	1939	1948	1977	2011	2035 2040 2037 2057 2061
TMSS	-10094 -10095 -10095 -10095	30125 81 10094 40136 20118 30126	70066 20120 20121	-10097 -20080 -20080 -20129 -20129 -20129	-20081 -30056 89 60160 40145 10100
AFGL	5159 793 794 5160 5161 795 795 797	800 5163 5164 801 802 803 803	806 807 4056 5166 809 811 812 812 812 8057	813 814 818 820 822 823 823 826	828 829 830 831 831 832 834 836
Type	1 89 V 11	6 H H H H H H H H H H H H H H H H H H H		98	411 ×
Spec	MB MBE M9 II; C C C C	M5 09.5 C C C M8 I)	C. 4.9.5	C WW W W W W W W W W W W W W W W W W W	G8 11 K2 K1.5 K1.5 M8 M6 K1 M2 IA
١ ١	.3 M98 C C C C .3	.3 M5 .9 C .9.5 .9 C .9.5 .9 M8 I .	აონანანა და იგ გგ	cc. c.	60 Z Z & & & & & & & & & & & & & & & & &
m(27) Spec		M 5 C C C C C M M 8 I M M 7 E M M 5 I M M 7 E	∩ ₹ 0.00 ° 6.40	66 6 0 22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	39 3 X X Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z
١ ١	M M M M M M M M M M M M M M M M M M M	3.3.3 M5 4.2.3 C 6.5.6 M8 I 2.4.3 M7E	4 - რო4 ლ	C 4.2 .3 C M2 .3 M2 M44 M84 M8	6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6
m(20) m(27)		-1.5.2 -3.3.3 09.5 -1.5.2 -4.2.3 C9.5 C C C C C C C C C C C C C C C C C C C		C .2 .4.2 .3 C .7 .2 .4.7 .3 M2 M2 .0 .2 .2.7 .3 M8	GB C -1.9 .2 C -1.9 .2 .2 .3 MB .3 .5 .9 .2 .2 .2 .6 .3 MG .3 .1 .8 .2 .2 .5 .8 .3 MG .3 .1 .8 .2 .2 .5 .8 .3 MG .3 .3 MG .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
20) m(27)	A -1.4 W M8E 3 -2.4 .2 M9E -3.1 .2 -4.0 .3 M9 -1.6 .2 -4.5 .3 M2 4 -2 .2 -4.5 .3 C	1.5.2 -3.3.3 M5 -2.1.2 -3.3.3 09.5 -1.2.2 -4.2.3 C	-3.1 .2 -6.7 .2 -8.4 .3 -1.8 .2 -7.1 .6 -1.9 .2 -3.3 .3 .0 -1.7 .2 -2.3 .3 M9.	C -2.7 .2 -4.2 .3	GB CC -1.9 .2 K1. CC -1.9 .2 AB CC -1.8 .3 AB CC -1.8 AB CC
) m(11) m(20) m(27)	.35 .4 -1.4 W M8E .3 -2.0 .3 -2.4	.4 -1.0 .4 -1.2 .2 -3.3 .3 09.5	.3 -3.5 .3 -6.7 .2 -8.4 .3 -1.8 .4 -3.3 .5 -7.1 .6 -1.8 .2 -2.6 .3 .3 -2.4 .3 -3.0 .2 -3.3 .3 .5 -7.1 .6 .3 -3.0 .2 -3.3 .3 .5 -7.1 .6 .3 -3.0 .2 -3.3 .3 .5 -7.1 .6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	.34 C -1.0 .2 -4.2 .3 -1.7 .4 -2.7 .2 -4.2 .3 -1.1 .3 -3.7 .2 -4.7 .3 M2 3 -1.0 .5 M3 -1.0 .5 M84	.3 -1.1 .4 .2 .3 -1.9 .2 .2 .5 .8 .3 M2 .3 .5 .9 .2 .5 .8 .35 .6 .3 .5 .9 .2 .5 .8 .35 .9 .2 .5 .8 .35 .9 .2 .5 .8 .35 .9 .2 .5 .8 .35 .9 .2 .5 .8 .35 .9 .2 .5 .8 .35 .9 .2 .5 .8 .35 .9 .2 .5 .8 .355
m(11) m(20) m(27)	35 .4 -1.4 W M8E 3 -2.0 .3 -2.4 W M8E 9 .2 M9 -3.1 .2 -4.0 .3 M9 3 -1.1 .45 .2 C 4 -1.2 .42 .2 C	4 -1.0 .4 -1.5 .2 -3.3 .3 09.5 -1.2 .2 -3.3 .3 09.5 -1.2 .2 -4.2 .3 C -1.5 .2 -4.2 .3 C -1.9 .4 -5.2 .4 -6.5 .6 MB I -1.9 .3 -1.9 .2 -2.4 .3 M7E	3 -3.5 .3 -6.7 .2 -8.4 .3 -1.8 .4 -3.3 .5 -7.1 .6 .3 -2.4 .3 -2.4 .3 -3.0 .2 -3.3 .3 .2 .4 .3 .3 .4 .0 .2 -3.3 .3 .3 .2 .4 .0 .2 -3.3 .3 .3 .2 .4 .1 .0 .2 -3.3 .3 .3 .4 .1 .0 .2 -3.3 .3 .4 .1 .0 .1 .0 .2 -2.3 .3 .4 .5 .1 .0 .1 .0 .2 .3 .3 .3 .5 .1 .7 .5 .1 .7 .5 .7 .4 .6	3 -1.0 C -1.0 .2 -4.2 .3 -1.7 .4 -2.7 .2 -4.2 .3 -1.1 .3 -3.7 .2 -4.7 .3 M2 3 -1.0 .5 M3 -1.0 .5 M8 44 M4	3 -1.1 .4 K2 31 .2 -1.9 .2 K1. 3 .9 C -1.2 .2 -2.6 .3 M8 42 .5 -1.8 .2 -2.6 .3 M6 5 -5.6 .3 -5.9 .2 -5.8 .3 M2
4) m(11) m(20) m(27)	.1 .35 .4 -1.4 W M8E .1 .3 -2.0 .3 -2.4 W M8E .1 .3 -2.0 .3 -2.4 W M8E .3 -2.0 .3 -2.4 O .3 M9 .7 .3 -1.1 .45 .2 C .5 .3 -1.2 .4 .5 .3 C	.2 .4	.4 .3 -3.5 .3 -6.7 .2 -8.4 .3 -1.8 .4 .3 -5.7 .1 .6 .3 -2.4 .3 -5.7 .1 .6 .3 -2.4 .3 -2.4 .3 -2.4 .3 -2.4 .3 -2.4 .3 -2.4 .3 -2.4 .3 -3.0 .2 -3.3 .3 .5 .4 .5 .5 .7 .4 .6	7.34 C -1.0 .2 -4.2 .3 -1.7 .4 -2.7 .2 -4.2 .3 .2 .3 1.1 C -1.0 .2 -4.7 .3 M2 .3 .3 .1 .2 -4.7 .3 M44 .2 .3 .1 .2 -1.0 .2 -2.7 .3 M8	1.0 .3 1.8 .3 -1.1 .4 1.5 .3 .9 .7 -1.9 .2 1.8 .4 -2 .5 -1.8 .2 -2.6 .3 M6 1.6 .3 -5.6 .3 -5.9 .2 -5.8 .3 M2 1.6 .3 -5.6 .3 -5.9 .2 -5.8 .3 M2

Table Of Observations

۵	2001-1-0-1-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0	048 N 440 0 4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0	222222111		0 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0
-	188.7 166.7 175.5 164.2 166.6 204.3 192.2 158.9	166 6 179.0 172.3 172.3 199.3 162.6 180.9	00000000000000000000000000000000000000		
sgo	25 1 1 1 1 1 2 1 2 2 2 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	31 - 22 - 22 - 22 - 22 - 22 - 22 - 22 -	2,22,21,1,2,2,2	1 N = 1 + 1 + 0 N = 0	
Comments		ü,	H II E SS LEP MULTIPLE	မ ယ င	il ü
Na Euz	U ORI TW AUR DO 11724 LO AUR BQ ORI DO 1342 V CAM	PI AUR AZ AUR DP ORI V352 ORI DS ORI DO 29938 SHARP. 241	NGC 2149 17 LEP 5 LEP GC 7779 NGC 2170	19 LEP SVS 6424 DO 30067 DO 30048 BU AUR	SHARP. 252 SHARP. 270 36 CAM. NGC 2183 GC 7873 TV GEM.
£	2063	2091	2148 2156 2166	2168	2165 2203 2190 2189
TMSS	20127 50153 40146 50154 20129 92 50155 40149	50156 40151 10103 96 50158 30136	-20084 -20085 -10109	-20087 30139 50160 60163	70069 99 10109 10109 10111
AFGL	8337 8421 8421 8422 8463 846 848 850	851 853 856 856 857 858 5175 5175	865 5177 866 870 871 872 5178 873 874	5179 878 876 5180 5181 5183 681 881 883	5184 888 888 888 888 100 100 100 100 100 100
Type	H H H H HH H	⊢ Ш			I IAB IIA
Spec	M M M M M M M M M M M M M M M M M M M	M3 I. C7,11 M7 G M6 M6 M9	C	0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	K2 II M8 M1 M5 M0-1 M2 II
27) S	E. E	M3 I C7,1 M7 G .3 M7EP .3 M6	5. S. W.		6 M. M
S	2.5. 3 MAG II. 1. 2. 2. 2. 3 MAG II. 1. 2. 2. 3 MAG II. 1. 3 MAG III. 1. 3 MAG II.	M3 I C7,1 M7 G -2.5 .3 M7EP -2.1 .3 M6 -2.3 .3 M9	-3.4 .3 C M1 -2.3 .3 M8 -7.8 .3 M3	-3.4.3 M6 -3.5.3 M6 -4.2.3 M8 M3 M8	XX
m(27) S	.6 .2 -3.4 .3 M6.5 M8 I M8	.5 .2 C7,1 .0 .2 -2.5 .3 M7EP .3 .2 -2.3 .3 M6	. 4 . 2 . 3 . 3 . 6 . 4 . 3 . 5 . 4 . 3 . 6 . 5 . 5 . 5 . 7 . 8 . 3 . 8 . 8 . 9 . 6 . 5 . 6 . 6 . 6 . 6 . 6 . 6 . 6 . 6	.6 .2 -3.4 .3 M6 .2 .2 -3.5 .3 M6 .1 .2 -3.4 .3 M6 .8 .2 -4.2 .3 M6 M3 M6	.1 .2 .3 .3 .3 .3 .5 .2 .2 .3 .3 .3 .4 .2 .5 .2 .3 .8 .8 .3 .4 .2 .5 .5 .3 .4 .8 .8 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
m(20) m(27) S	C -3.6 .2 -3.4 .3 M6.5 M6	5 .2 C7,1 0 .2 -2.5 .3 M7EP -2.1 .3 M6 3 .2 -2.3 .3 M7	4 .2 M1 1 .4 -2.3 .3 M8 2 .5 -7.8 .3 M3	6 .2 -3.4 .3 M6 2 .2 -3.5 .3 M6 1 .2 -3.4 .3 M6 8 .2 -4.2 .3 M6 M3	C -4.5.2 -3.3.3 K2 M8
m(27) S	-3.6 .2 -3.4 .3 M6.5 M4 I M6 I	-1.5 .2 C7,1 -1.0 .2 -2.5 .3 M7EP -1.3 .2 -2.3 .3 M6 -2.1 .2 R9	-3.0 .2 -3.4 .3 C -2.4 .2 M1 -3.1 .4 -2.3 .3 M8 -3.2 .5 M8 -6.0 .2 -7.8 .3 M3	2.6 .2 -3.4 .3 M6 M6 -3.5 .3 M6 1.2 .2 -3.4 .3 2.8 .2 -4.2 .3 M6 M3 M1	72.1 .2 .3 .3 .3 .1 .2 .4 .5 .2 .5 .5 .3 WI MS MAS MAS MAS MAS MAS MAS MAS MAS MAS
(11) m(20) m(27) S	2.9 C -3.6 .2 -3.4 .3 M6.5 1.6 .4 M4 I 1.2 .4 M6 1.3 .5 M9 I 1.5 C -1.7 .2 -3.2 .3 M3 1.7 .3 -2.0 C K0 I 1.6 .2 -2.7 .2 -2.5 .3 M6	.7 .3 -1.5 .2 C7,1 .1 C -1.0 .2 M7 G .1 .3 -3.0 .2 -2.5 .3 M7EP .0 C -1.3 .2 -2.3 .3 M6	2.4 .3 -3.0 .2 -3.4 .3 C 1.5 .3 -2.4 .2 M1 2.2 .3 -3.1 .4 -2.3 .3 M8 8 .49 .2 M8 2.7 .3 -6.0 .2 -7.8 .3 M3	2.6 .2 -3.4 .3 M6 M6 -3.5 .3 M6 1.2 .2 -3.4 .3 2.8 .2 -4.2 .3 M6 M3 M1	2 C -4.5 .2 -5.5 .3 MI MS 1.3 .4 -1.6 .2 MA MA2
(11) m(20) m(27) S	4 -2.9 C -3.6 .2 -3.4 .3 M6.5 3 -1.6 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4	3 -1.7 .3 -1.5 .2 C7,1 31 C -1.0 .2 M7 G 5 -1.1 .3 -3.0 .2 -2.5 .3 M7EP 4 2.0 C -1.3 .2 -2.1 .3 M6 42 .5 -2.1 .2 M9	3 -1.5 .3 -2.4 .2 -3.4 .3 C 3 -1.5 .3 -2.4 .2 M1 4 -2.2 .3 -3.1 .4 -2.3 .3 M8 2 -2.7 .3 -6.0 .2 -7.8 .3 M3	-2.6.2 -3.4.3 M2 4	32 C -4.5 .2 -5.5 .3 MI MS -1.3 .4 -1.6 .2 MA
(4) m(11) m(20) m(27) S	.6 .4 -2.9 C -3.6 .2 -3.4 .3 M6.5 .1 .3 -1.6 .4 M4 II .3 .5 -1.3 .5 M9 II .8 .1 .5 .3 .3 .3 .3 .3 .1 .5 .3 .3 .3 .3 .3 .1 .5 .2 .2 .2 .3 .3 .3 .1 .3 .2 .0 C .1 .3 -2 .0 C .1 .3 -2 .0 C .1 .3 -2 .0 C M9 II .3 -1 .7 .3 -2 .7 .2 -2 .5 .3 M6	.1 .3 -1.7 .3 -1.5 .2 C7,1 .4 .31 C -1.0 .2 N7 G .1 .3 -1.1 .3 -3.0 .2 -2.5 .3 N7EP .4 .4 2.0 C -1.3 .2 -2.3 .3 N7 .9 .4 -2 .5 -2.1 .2 N9	.5 .3 -1.5 .3 -2.4 .2 -3.4 .3 C .5 .3 -3.5 .3 C .3 .4 .2 .3 .4 .3 C .3 .4 .2 .3 .4 .3 C .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .4 .3 .5 .3 .4 .3 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	.6 .3 M2 .7 .4 M2 .7 .4 M6	.6 .3 .3 .3 .4 .1.3 .4 .1.6 .2 .8 .3 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8
50) Ref m(4) m(20) m(27) S	6 SAD -1.6 .4 -2.9 C -3.6 .2 -3.4 .3 M6.5 14 SAO .1 .3 -1.6 .4 M4 I 25 SAO .1 .3 -1.2 .4 M6 I 3 .5 -1.3 .5 M6 I 2 SAO .3 .4 .3 .5 -1.3 .5 M9 I 2 IRC .15 .3 1.5 C -1.7 .2 -3.2 .3 M5 I 2 IRC .9 .3 -1.7 .3 -2.0 C M9 I 2 IRC .9 .3 -1.7 .3 -2.0 C M9 I 47 CIO .1 .3 -1.6 .2 -2.7 .2 -2.5 .3 M6	4 SAO -1.1 .3 -1.7 .3 -1.5 .2 C7.1 24 IRC 1.2 .4 .2 C -1.0 .2 M7 G AGL 1.1 .3 -1.1 .3 -3.0 .2 -2.5 .3 M7EP E3 SAO 1.4 .4 2.0 C -1.3 .2 -2.3 .3 E5 SAO 1.4 .4 2.0 C -1.3 .2 -2.3 .3 M7EP 24 IRC 9.42 .5 -2.1 .2 M9	3 LKV 54 FIR 5.3 -2.4 .3 -3.0 .2 -3.4 .3 C 54 FIR 6.2 1.5 .3 -1.5 .3 -2.4 .2 6.0 .2 6.3 6.3 C 6.4 5.5 6.0 .2 6.3 6.3 C 6.4 6.5 6.3 6.0 .2 6.3 6.3 6.3 6.3 6.3 6.3 6.3 6.3 6.3 6.3	11 FIR -2.6 .2 -3.4 .3 M2 31 SAO .6 .3 M2 49 FIR -1.2 .2 -3.5 .3 M6 9 FIR -2.1 .2 -3.4 .3 -2.1 .2 -3.4 .3 59 SAO 1.1 .3 -2.8 .2 -4.2 .3 M6 52 SAO 1.2 .3 M6 54 IRC .5 .4 M1	51 FIR 24 FIR 53 SAO 1.4 .3 -1.2 C -4.5 .2 -3.8 .3 K2 37 AGL 1.1 .3 -2 C -4.5 .2 -5.5 .3 MI 50 SAC .6 .3 MI 51 SAC .6 .4 -1.3 .4 -1.6 .2 MA 77 SAC 1.2 .4 MA
C(1950) Ref m(4) m(11) m(20) m(27) S	10 6 SAU -1.6 .4 -2.9 C -3.6 .2 -3.4 .3 M6.5 5 30 14 SAU .1 .3 -1.6 .4 M4 I	5 56 4 SAO -1.1 .3 -1.7 .3 -1.5 .2 C7.1 C7.1 C7.1 C7.1 C7.1 C7.1 C7.1 C7.1	7 26 3 LKV	0 38 11 FIR	2 49 24 FIR 5 43 53 5A0 1.4 .32 C -4.5 .2 -5.5 .3 MF 5 12 2.5 5 .3 MF 5 12 2.5 2.5 5 .3 MF 5 12 2.5 5 .3
Dec(1950) Ref m(4) m(11) m(20) m(27) S	+20 10 6 SAD -1.6 .4 -2.9 C -3.6 .2 -3.4 .3 M6.5 +45 30 14 SAD .1 .3 -1.6 .4	+45 56 4 5A0 -1.1 .3 -1.7 .3 -1.5 .2 +39 56 25 FIR +39 40 24 IRC 1.2 .4 .2 C +1.6 .2 C 7.1 +10 54 42 IRC .4 .3 -1.1 C -1.0 .2 M7 6 -7 36 6 AGL 1.1 .3 -3.0 .2 -2.5 .3 M7EP + 8 41 28 FIR +50 36 53 5A0 1.4 .4 2.0 C -1.3 .2 -2.3 .3 +50 15 20 FIR .9 .4 -2 .5 .5 -2.1 .3 M6 +28 29 24 IRC .9 .4 -2 .5 .2 -2.1 .2 M9	+ 7 26 3 LKV - 9 40 54 FIR + 7 26 4 15 .3 -3.0 .2 -3.4 .3 C - 9 40 54 FIR +67 44 24 AGL 1.5 .3 -1.5 .3 -2.4 .2	+20 38 11 FIR	+20 30 51 FIR +55 43 53 5A0 1.4 .3 -1.9 .2 -3.8 .3 .3 + 3 46 3 EIC 1.1 .32 C -4.5 .2 -5.5 .3 M8 + 3 46 3.5 EIC 1.1 .32 C -4.5 .2 -5.5 .3 M8 +1 1 0 0 1RU 1.3 .3 -1.3 .4 -1.6 .2 M8 +21 52 52 54C .E .4 -1.3 .4 -1.6 .2 MA +32 42 23 5AC 1.2 .4 MA
950) Dec(1950) Ref m(4) m(11) m(20) m(27) S	10 6 SAU -1.6 .4 -2.9 C -3.6 .2 -3.4 .3 M6.5 5 30 14 SAU .1 .3 -1.6 .4 M4 I	45 56 4 5A0 -1.1 .3 -1.7 .3 -1.5 .2 C7.1 3 9 40 24 IRC 1.2 .4 .2 C 7.1 C -1.0 .2 M7 G 7.1 C 1.1 .3 -1.1 C -1.0 .2 M7 G 8 41 28 FIR	7 26 3 LKV	0 38 11 FIR	2 49 24 FIR 5 43 53 5A0 1.4 .32 C -4.5 .2 -5.5 .3 MF 5 12 2.5 5 .3 MF 5 12 2.5 2.5 5 .3 MF 5 12 2.5 5 .3
50) Dec(1950) Ref m(4) m(11) m(20) m(27) S	1.0 +20 10 6 SAO -1.6 .4 -2.9 C -3.6 .2 -3.4 .3 M6.5 5.1 +45 30 14 SAO .1 .3 -1.6 .4 M4 I S.4 +35 34 25 SAO .1 .3 -1.2 .4 M6 I S.5 +22 50 2 SAO .3 .4	3.4 +45 56 4 SAO -1.1 .3 -1.7 .3 -1.5 .2	7.5 + 7 26 3 LKV	1.1 +20 38 11 FIR 6.3 3.3 +34 54 10 SAO 6.3 4.8 +21 37 49 FIR 7.4 5.4 +21 51 18 8 7 1.2 5.4 +21 52 5AO 1.2 .3 4.0 +47 44 59 SAO 1.2 .3 4.0 +31 24 54 IR 7.5 5.4 +31 24 54 IR 7.5 5.4 +31 24 54 IR 7.5 6.3 +31 24 54 IR 7.5	8.1 +20 30 51 FIR 2.0 +12 49 24 FIR 9.3 +65 43 53 SAO 1.4 .32 C -4.5 .2 -3.8 .3 K2 6.9 + 3 46 3 EIC 1.1 .32 C -4.5 .2 -5.5 .3 Mi 1.4 - 6 12 27 AGL 1.1 .32 C -4.5 .2 -5.5 .3 Mi 3.0 + 10 2 35 SAO .6 .3 Mi 3.0 + 11 52 22 SAC .8 .4 -1.3 .4 -1.6 .2 MO- 8.2 - 7 14 17 SAO 1.7 .3 MA 3.6 +32 42 23 SAC 1.2 .4 MA

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Comments	BU GE E	UM LYN UM LYN SHARP, 266 E		ü	
Names	6 GEM SHARP. 257 GI ORI DO 30069 SHARP. 258 40 CAM NGC 2195 SHARP. 269 ETA GEM	DO 30164 GAM MON SHARP. 267 1 LYN VW AUR GK ORI	SVS 100729 HD 44179 HD 1513 DO 1522 BN MON	MUU GEW V MON DEL COL PSI1 AUR GN URI 5 LYN BL ORI	AB GEM BY MOA SW MON
£	2201	2227	2275	2286 2289 2289 2293 2308	
TMSS	20136 20138 80013 60164 20139	60165 60166 30148 -30055	-10117 100 10118 102 103	20144 1044 50164 50164 105 106 60167	20145 10123 10124 60168
AFGL	895 896 5186 897 900 5187 901 5188	5 1885 903 903 900 900 900 910 5190	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	922 922 922 924 937 933 933	935 935 936 937 940 941 943 943
Spec Type	M1-2 IA M5 M3 K3 G	M6 K3 III M3 IIIAB M6 M4 C5,4	M7 M1 G B9-A0E III M2 M5 C4.3E M10 SC	M3 III M5E G4 K5 IAB M7 M7 M7 K4 III C6,3	C RED CS,4 M7.5 III M6 III
m(27)				ა . ი ი	e.
E	24 - 44	,	4 4	4 6	ä
m(20)	13.5 7.8 7.8 7.8 7.8 7.8 7.8 7.8 7.8 7.8 7.8	2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2	2. 0.2	21 111 1 40 80 117 1	11
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B(4)	r. 2. 2. 2. 8.			0	0 - 2 - 4 - 4 0 0
RA(1950) Dec(1950) Ref	6 9 17.2 +22 55 18 SAO 6 10 0.0 +17 59 54 AGL 6 10 18.8 +15 23 1 FIR 6 10 26.0 +18 33 42 IRC 6 10 43.0 +17 58 36 FIR 6 11 11.1 +60 0 57 SAO 6 11 31.3 +17 45 59 FIR 6 11 11.5 +22 31 23 SAO	6 12 6.6 +56 45 8 SAO 6 12 24.9 - 6 15 29 SAO 6 12 46.9 +14 16 20 FIR 6 13 18.3 +61 32 4 SAO 6 13 54.0 +33 13 0 IRC 5 14 7.0 -27 29 30 IRC 5 14 58.2 + 8 32 20 EIC 6 15 39.8 +23 20 39 FIR 6 15 50.2 +15 17 16 FIR	6 16 58.0 -12 35 24 IRC 6 17 29.3 - 2 55 18 56.6 6 17 37.0 -10 36 52 LKV 6 18 4.0 +11 59 30 AGL 6 18 12.0 +49 4 42 AGL 6 18 26.2 + 2 35 35 SAU 6 19 15.3 + 7 22 27 EIC 6 19 22.0 - 3 50 12 IRC 6 19 46.0 + 3 27 0 EIC	6 19 56.1 +22 32 28 SAO 6 20 12.4 - 2 10 10 SAO 6 21 2.9 +49 18 57 SAO 6 21 30.0 - 0 15 36 IRC 6 22 26.0 +17 2 32 FIR 6 22 27.1 +58 26 50 SAO 6 22 36.9 +14 45 4 SAO 6 22 41.0 - 9 6 6 IRC	6 23 4.7 - 9 30 21 JCG 6 23 12.8 +13 10 13 FIR 6 23 15.0 + 5 35 6 AGL 6 23 55.0 + 9 35 6 AGL 6 24 4.0 +10 26 6 IRC 6 24 8.0 + 3 42 20 GCV 6 24 19.0 + 5 25 0 IRC 6 24 49.5 -10 9 44 FIR 6 25 2.0 +61 34 36 IRC

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-	222.1 195.6 202.6 203.6 203.4 186.1 219.2 201.3	201.1 154.3 160.0 151.1 201.7 201.7 208.7 169.6	207.3 215.5 215.5 198.5 195.5 195.5 228.7 228.7	196.8 2212.6 2227.9 2012.9 155.7 203.7 203.7 203.7 203.7 204.3	203.0 203.3 202.9 187.5 160.3 209.3 204.1 171.2 157.8
ops	6141114214	61116644611 603567	- 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5	121211211	22-12-12-13-13-13-13-13-13-13-13-13-13-13-13-13-
Comments	FS CMA NGC 2234 EIC 135	NGC 2245 V490 MDN SHARP. 280	89 W Z	NGC 2261	₩ ¥ ¥
NO BOS	HD 45677 AQ GEM V477 MON DO 1612 DW GEM VY MON DO 12285	LKHA 215 DO 30551 7 LYN RT CAM NGC 2247 CR GEM HD 46573 TU AUR	ROSETTA UU AUR DY GEM GL MON AX GEM NU2 CMA UU GEM	GAM GEM SY MON NU3 CMA CY MON DO 1689 U LYN R MON GC 8694	NGC 2264 NGC 2264 V609 MON SU LYN FSI4 AUR
£		2376	2405	2421 2443 2450	2459
TMSS	20147 10125 30153 40156	60169 60170 60171 20152 50170	40158 10128 -10131 20153 -20096	20154 119 -20098 121 10130 60172 -10135	60173 40161 60175
AFGL	5195 947 947 4062 949 950 951 951	5198 956 957 957 4508 5199 5200 962 962	961 966 967 968 969 970 971	975 975 987 981 981 5203 986 5203	45195 9889 9888 9991 9990 9996
Type		н н , нн	۵		
Spec	B2E V M6.5 W M7 M7	M47 K4 M6E I C8,3E M4 II	C7.4 S8.5 M6.5 M6.5 M6 K1 IV M7	A0 IV M6E K1 II M6.5 M5 M7E K3 II	MG KS II
8	.8 .3 B2E M6.1 M1	.1.3 M.7.4.9.3 M.6E. M.7.4.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	.53 .9 C7. .6 .3 M6. .8 M6. .7 M7.	A0 IV M6E IV K1 II K1 II M5 M6.5 M7E .1 .3 M6 K3 II	6.6. 6.6. 8. X X X X X X X X X X X X X X X X X X X
m(27) S	2. 2. 2. 3. 3. 3. 3. 4. 4. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.	.9 .2 .4 .1 .3 M7 .7 .2 .2 .9 .3 M6E .9 .2 .2 .9 .3 C8,	5 . 2 . 2 . 2 . 3 . 3 . 3 . 3 . 3 . 3 . 3	A0 IV M6E K K1 II A .3 M6.5 M7E 1 .3 M6 K3 II	644 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
8	-3.5.2 -2.8 .3 B2E -11.2 .2 M1 -11.4 .5 M7 -2.3 C M7 -2.2 .2 -2.7 .3 C	-3.9.2 -4.1.3 M7 -3.9.2 -4.1.3 M7 -1.7.2 -2.9.3 M6E -7.2 -2.9.3 C8,	-3.4 .2 -4.5 .3 -1.2 .2 -2.7 .3 C7, -1.5 .2 S8, -1.5 .	2.0 .2 M6E K1 II	13.2. 1.2. 1.2. 1.2. 1.2. 1.2. 1.2. 1.2.
m(27) S	2. 2. 2. 3. 3. 3. 3. 4. 4. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.	.9 .2 .4 .1 .3 M7 .7 .2 .2 .9 .3 M6E .9 .2 .2 .9 .3 C8,	3.4 .2 -4.5 .3	2.0 .2 M6E K1 II K1 II M6.5 M6.5 M6.5 M6.5 M6.5 M6.5 M5.5 M5.2 4 .2 -3.1 .3 M6.5 M6.5 M6.5 M6.5 M6.5 M6.5 M6.5 M6.5	644 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
m(11) m(20) m(27) S	1.9 .5 .3.4 .5 .8 .3 B2E 1.9 .5 .3.4 .5 M7 1.5 .4 .2.3 M7 1.6 .4 .4 .2.2 .2 .2.7 .3 M8 1.5 .4 .2.2 .8 M8	3.0 .2 -3.9 .2 -4.1 .3 M7 .4 .2 -7 .2 -8.9 .3 M6E -7 .4 .4 -7 .2 -2.9 .3 C8,	2.1 .3 -2.0 C 2.7 .3 C7,	1.3 .3 -2.0 .2 M6E K1 II 5 .2 -2.4 .3 M6.5 M5 1.3 .4 -1.6 W 0.7 C -2.4 .2 -3.1 .3 M6 K3 II C2.0 .2 -2.9 .3	1.2 .5 1.2 .2 1.2 .6 .3 1.4 .2 1.4 .6 .3 1.4 .2 1.4 .6 .3 1.4 .2 1.4 .6 .3 1.5 w M6
(11) m(20) m(27) S	3 -1.2 C -3.: .2 -2.8 .3 B2E M6: 9 -1.9 .5 -3.4 .5 M7 4 -1.5 .4 -2.3 C M7 4 -1.5 .4 -2.2 .2 -2.7 .3 C 4 -1.5 .4 -2.2 W M8	3 -3.0 .2 -3.9 .2 -4.1 .3 M7 4 .4 .2 -7 .2 -8.9 .3 M6E 4 .4 -1.7 .2 -2.9 .3 C8, 3.3 M4 3 -7 .2 -2.9 .3 M4 3 M2	4 .4 -3.4 .2 -4.5 .3 -2.1 .3 -2.0 C C C C C C C C C C C C C C C C C C C	3 -1.3 .3 -2.0 .2 M6E 3 -1.3 .4 -1.6 W 3 -1.3 .4 -1.6 W 3 -1.3 .4 -1.6 W 3 -2.0 .2 -2.9 .3 M6.5 3 -2.0 .2 -2.9 .3 M6	-1.2 .5 -1.2 .2 .2 .2 .2 .3 .1 .1 .3 .3 .4 .2 .4 .6 .3 .1 .4 .2 .4 .6 .3 .1 .7 w M6
(4) m(11) m(20) m(27) S	.3 C -1.2 C -3.: .2 -2.8 .3 B2E .5 .3 -1.9 .5 -3.4 .5 .2 .4 -1.5 .4 -2.3 C M7 .9 .5 .1 C -2.2 .2 -2.7 .3 .2 .3 -1.4 .4 -2.2 W M8	.5 .3 -3.0 .2 -3.9 .2 -4.1 .3 M7 .9 .4 .4 .2 -7 .2 -8 .3 M6E .8 .3 -1.4 .4 .2 -2.9 .3 C8, .6 .3 M42	1.3 .3 .2.1 .3 .2.0 C	15 .3 1.8 C M6E 2 .3 -1.3 .3 -2.0 .2 M6E 2 .4 .3 -1.3 .4 -1.6 W M5 8 .3 -1.3 .4 -2.0 .2 -2.9 .3 M6 8 .3 -2.0 .2 -2.9 .3 M6	.4 .3 .1.2 .5 .1.2 .2 .1.2 .6 .3 .1.2 .5 .1.2 .5 .1.4 .6 .3 .1.4 .2 .1.4 .2 .1.4 .6 .3 .1.4 .2 .1.4 .2 .1.4 .6 .3 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1

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-	224.9 229.1 189.5 213.1 137.5 186.1 224.2 227.2 185.1	2011.3 2012.0 2012.0 2012.0 2012.0 2017.2 2017.2 2017.2 2017.2 2017.2	208.7 2030.0 2030.0 223.9 2337.4 2235.0 137.6 137.6	228.5 1726.0 1739.2 2335.0 2008.2 2210.7 226.2 210.6	161.2 1920.8 1990.5 186.1 198.2 198.2 239.2 239.2
SQD	ED 24-2-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	1212-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2	113111111111111111111111111111111111111	111111111111111	412111111111111111111111111111111111111
Comments	w	NGC 2282			H 11 SHARP. 293
Names	DY CMA GN CMA EPS GEM 28 GEM FX MON ALF CMA CH PUP	GC 8891 6,400 DO 30947 HD 50138	SX MON DL CMA GX MON GC 9018 THE CMA OM 11 CMA GC 9073 CL MON RED STAR	GS CMA MUU CMA DO 12662 X CMA AZ MON V523 MON	R LYN NGC 2316 41 GEM RS GEM V614 MON HD 52721 NP GEM DO 12745 SIG CMA
Ħ	2473 2480 2491	2503 2508	2567 25574 2580 2527	2593	2615 2631 2635 2646
TMSS	-10138 -20102 30164 80015 30165 -20105 -30071E	10138 -20107 -10139 131 60176	134 -20110 10143 -30070 -10140 -20112 80016	-20113 -10141 -20114 -20114 140 -10146	20163 30171 141 141 20166 -30072
AFGL	999 999 1001 1003 1004 5207 1007 1008	5208 1010 5209 1012 1014 1017 4064 1020 1021	1022 5211 1028 45385 5212 1034 1036 1038	5213 1042 1042 1042 1044 1044 5215 5215	1050 5217 1051 1052 1053 4066 5218 1055 1056
Spec Type	M7 M7 G8 1B M6 K4 G M6.5 A1 V	K4 III M7 IIABS C C	M6.5 M6-BE M9 M4 III K2 III K4 III C6,3E	77. 77. 77. 77. 77. 78. 85.	S3.9E C4.5 IB MA C4.5 MA C4.5
m(27)	ი. ი.	2 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3	6. 6.	6. 7.4. 6. 7.4.	ຕ. ຜ. ເຕ
m(20)		1 1 1.3.1 1. 2 0 1.03.1 1. 2 2 44.2 2	241 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		11 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0
m(11)	1 0 1 1 8 0 8 4 5 4 0 0 6 0		1	 	2
m(4)	0.40 mm 0.00-	4 8 6 8 6 7	40-e0	 	
RA(1950) Dec(1950) Ref	6 40 18.0 -14 24 24 IRC 6 40 19.0 -18 57 36 IRC 6 40 51.4 +25 10 57 SAD 6 41 18.6 - 1 4 48 FIR 6 41 19.3 +77 2 42 SAD 6 41 35.4 +29 1 24 SAD 6 42 35.7 -16 38 46 SAD 6 43 28.0 -36 28 42 IRC 6 43 55.0 +30 20 12 IRC	6 44 15.1 + 1 20 28 FIR 6 44 36.9 + 8 5 34 SAD 6 45 10.0 -20 16 12 IRC 6 45 13.8 - 8 56 33 SAD 6 47 17.0 -66 50 30 AGL 6 48 55.6 + 5 50 54 AGL 6 49 6.5 +61 4 39 SAD 6 49 7.4 - 6 53 59 FIR	6 49 18.1 + 4 49 32 SAO 6 49 35.9 -18 58 34 FIR 6 50 3.5 + 8 29 0 EIC 6 50 57.4 -26 54 40 FIR 6 51 52.0 -11 58 29 SAO 6 52 48.3 +77 2 44 SAO 6 52 55.6 + 6 26 37 EIC 6 53 9.1 - 2 16 20 SK	6 53 32.3 -16 46 26 FIR 6 53 49.1 -13 58 39 5AO 6 54 41.0 -23 53 42 IRC 6 55 7.6 + 3 22 14 EIC 6 55 43.6 + 6 14 U SAO 6 55 51.9 -13 58 17 FIR 6 56 16.2 + 3 39 B FIR 6 56 48.4 - 3 53 47 FIR	6 57 10.8 +55 24 7 SAD 6 57 21.2 - 7 40 50 FIR 6 58 27.0 +30 36 12 IRC 6 58 31.9 - 3 10 50 SAD 6 58 59.0 - 7 55 12 AG 6 59 25.8 -11 13 23 FIR 6 59 31.0 +17 49 43 SAD 6 59 40.3 +16 44 52 SAD 6 59 43.6 -27 51 43 SAD

Table Of Observations

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-	218.3 224.6 2224.6 2223.7 2223.7 222.4 225.7 225.8	246.9 237.0 157.0 221.4 149.9 225.4 225.4	218.7 238.4 158.1 158.1 2231.5 178.3 178.3 232.8	165.8 2233.3 2222.4 2200.8 2201.2 221.2 169.1 260.1	240.6 180.0 246.9 230.1 186.9 196.0 231.8 228.1 161.4
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Comments	H II CMA R1#20 SHARP. 297		PLAN. NEB		
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950) Ref m(4) m(11) m(20) m(27)	33 36 AGL 1.4 .3 30 20 FIR 1.2 .3 -1.8 .3 -2.1 .2 -2.3 .3 28 35 CIO 1.2 .3 -1.8 .3 -3.0 .2 -3.6 .3 13 45 FIR 4.7 C 3.7 C -1.7 .2 -3.1 .3 52 34 FIR 4.7 C 3.7 C -1.7 .2 -2.9 .3 37 35 SAO 1.5 .3 -1.4 .3 -2.8 .2 14 31 FIR 1.3 .3 -1.3 .3 -1.8 .2 -3.4 .3	51 46 SAO -1.0 .3 -1.8 .4 -3.2 .5 M5 1 2 AGL 1.8 .3 -1.8 .4 -3.2 .5 M5 31 12 AGL 1.8 .3 -1.2 .4 -2.2 .5 M5 5 7 18 EIC 1.2 .3 -1.2 .4 -2 .2 .2 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	# 12 46 FIR # 3 0.0 C	30 50 SAO . 6 .3 MSS 12 SAO 1.0 .3 -2.1 .3 -2.0 .2 -2.4 .3 C	# 47 30 SAO 0.0 .3 # 7.2 .3 # 7.4 # 7.5 #
Dec(1950) Ref m(4) m(11) m(20) m(27)	- 4 33 36 AGL 1.4 .3 - 7 30 20 FIR 1.2 .3 -1.8 .3 -2.1 .2 -2.3 .3 -11 28 35 CIO 1.2 .3 -1.8 .3 -3.0 .2 -3.6 .3 -10 22 34 FIR 4.7 C 3.7 C -1.7 .2 -2.9 .3 -10 37 35 SAO 1.5 .3 -1.4 .3 -2.8 .2 -12 14 31 FIR 1.3 .3 -1.3 .3 -1.3 .3 -3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	-35 51 46 SAO -1.0 .3 -1.8 .4 -3.2 .5 M5 -25 1 55 SAO .7 .3 +89 31 12 AGL 1.8 .3 +8 57 18 EIC 1.2 .3 -1.2 .42 .2 C5 +66 1 24 IRC 1.4 .3 -1.2 .42 .2 C5 +24 1 50 35 SAO .3 .3 -1.3 .4 -1.1 .2 M8 H3 -2.3 .2 M8 -1.1 50 35 SAO .3 .3 -1.3 .4 -1.1 .2 R5 M3 M3 M3 M3 M3 M4 M5	-4 12 46 FIR 3.3 0.0 C -2.3 .2 -3.0 .3 F8 +58 32 42 AGL 2.1 .3 -2.3 .4 -2.5 C -1.9 .2 -2.4 .3 ME -19 45 SAO 1.2 .3 -2.0 .3 -1.9 .2 -2.4 .3 K2 +30 19 45 SAO 1.2 .3 -2.0 .3 -2.0 .3 -4 .2 -4 .3 -4 .2 -4 .2 -4 .3 -4 .2 -4 .2 -4 .3 -4 .2 -4 .3 -	+51 30 50 SAO .6.3	H38 B 30 1RC2 .3 -1.2 .3 H77 30 SA0 0.0 .3 H38 B 30 1RC2 .3 -1.2 .3 H77 30 SA0 1RC2 .3 -1.2 .3 H77 30 SA0 1.4 .3 H2.1 .4 H87 7 35 SA0 1.6 .3 H78 SA
950) Dec(1950) Ref m(4) m(11) m(20) m(27)	4 33 36 AGL 1.4 .3 70 48 28 SAO 1.6 .3 11 28 35 CIO 1.2 .3 -1.8 .3 -2.1 .2 -2.3 .3 11 13 45 FIR 4.7 C 3.7 C -1.7 .2 -3.6 .3 10 22 34 FIR 4.7 C 3.7 C -1.7 .2 -2.9 .3 10 37 35 SAO 1.5 .3 -1.4 .3 -2.8 .2 14 56 21 UCG 1.3 .3 -1.3 .3 -1.3 .3 -3 .3 .3	35 51 46 5A0 -1.0 .3 -1.8 .4 -3.2 .5 M5 59 31 12 AGL	# 12 46 FIR # 3 0.0 C	51 30 50 SAO .6.3 M5S 20 12 18 UCG .2.3 -2.1.3 -2.0.2 -2.4.3 C 7 50 30 EIC 1.3.3 -9.3 -9.3 -7.2 -3.4.3 M4 16 14 44 SAO4.39.37.2 -3.4.3 M4 27 59 11 SAO 1.3.34.45 C -3.0.3 C5, 8 56 EIC 1.6.34.45 C M8 23 13 32 SAO .4.3 -4.45 C M8	# 47 30 SAO 0.0 .3 # 7.2 .3 # 7.4 # 7.5 #
950) Ref m(4) m(11) m(20) m(27)	3.0 - 4 33 36 AGL 1.4 .3 3.3 +70 48 28 SAO 1.6 .3 7.3 - 2 30 20 FIR 1.2 .3 -1.8 .3 -2.1 .2 -2.3 .3 2.6 -11 28 35 CIO 1.2 .3 -1.8 .3 -3.0 .2 -3.6 .3 7.0 -11 13 45 FIR 4.7 C 3.7 C -1.7 .2 -3.1 .3 4.0 - 8 52 34 FIR 4.7 C 3.7 C -1.7 .2 -2.9 .3 7.0 +10 37 35 SAO 1.5 .3 -1.4 .3 -2.8 .2 8.8 +14 56 21 UCG 1.3 .3 -1.3 .33 .2 6.6 -12 14 31 FIR 1.3 .3 -1.3 .3 -3.3 .3	6.5 -35 51 46 5AO -1.0 .3 -1.8 .4 -3.2 .5 M5 2.4 -25 1 55 5AO -7.3 6.0 +59 31 12 AGL 1.8 .3 4.7 + 8 57 18 EIC 1.2 .3 -1.2 .42 .2 6.0 +66 1 24 IRC 1.4 .3 -1.2 .42 .2 6.0 +10 39 30 IRC 1.4 .3 -1.8 .3 -2.3 .2 6.0 -10 39 5 5AO .3 .3 -1.3 .4 -1.1 .2 6.4 + 4 15 24 5AO 1.6 .3 6.5 -35 5AO -1.6 .3 M3 6.6 -1.1 50 35 5AO .3 .3 -1.3 .4 -1.1 .2 6.7 -1.2 .4 .4 .5 .4 .5 .4 .5 .4 .5 .4 .5 .4 .5 .4 .5 .4 .5 .4 .4 .5 .4 .5 .4 .5 .4 .5 .4 .4 .5 .5 .4 .5 .4 .5 .4 .5 .4 .5 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	4.2 - 4 12 46 FIR 3 3 3 0.0 C -2.3 .2 -3.0 .3 F8 0.0 C +58 32 42 AGL 2.1 .3 -2.3 .4 -2.5 C R CIO 2.3 -72 56 8 CIO 2.9 -18 26 53 FIR 7.5 +30 19 45 5AO 1.2 .3 -2.0 .3 -1.9 .2 -2.4 .3 K2 0.2 - 0 16 50 FIR 7.4 C 1.1 C -1.6 .2 -2.6 .3 M5 0.6 -29 2 15 5AO .5 .3 -1.0 .2 M5	9.8 +51 30 50 SAO .6 .3 M55 3.7 -20 12 18 UCG .2 .3 -2.1 .3 -2.0 .2 -2.4 .3 C 3.3 - 7 50 30 EIC 1.3 .39 .39 .37 .2 -3.4 .3 M4 8.5 - 6 17 55 15 SAO 1.3 .39 .37 .2 -3.4 .3 M1 9.9 +27 59 11 55 PI 1.3 .34 .45 C .3 0 .3 C5, 80 8.7 +48 36 38 SAO .7 .34 .45 C M8 6.3 -2 13 32 SAO .4 .3 .34 .45 C M8	4.7 -27 47 30 SAD 0.0 .3 -1.2 .3 M77 -27 47 30 SAD 0.0 .3 -1.2 .3 -1.2 .3 M77 -2.3 -1.2 .3 -1.2 .3 M77 -2.3 -1.2 .3 -2.1 .4 M6 1.4 -15 47 46 CIG 1.2 .3 -2.1 .4 M6 1.4 .3 SAD 1.4 .3 SAD 1.6 .3 -1.5 .2 M7

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Spec Type	M7 K4 III M6.5E M7 M0 G C6,4E M6 K7 III	M4 M2 G M8 K5 M3 IIIAB G5 IIIA	M1 G M8 M7 M7EP K2 III	MS II M4 III M7 IIII M9 RED C C C C M7 III M7 G M7 G M8 III	M3.5 G M5 M3 G C5,4 G9,1 G5,5
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(11) m(20) m	2.4 .3 -3.3 .4 5 .2 -3.0 .2 -3.5 .3 9 .3	1.0 E 1.1 E 1.0 E 1.1 E	-1.7 .2 -1.6 .2 1.4 .3 -1.7 .2 -2.2 .3	1.8 .3 -2.1 .2 -2.1 .3 1.5 .3 -2.2 -2.1 .3 1.5 .C -9 .2 2.0 .3 -1.3 .C	-3.0 .4 2.2 C 7 .3 -1.4 .2 -2.2 .3 1.3 .3
4) m(11) m(20) m	.0 +24 53 16 SAD 1.0 .3 .3 + 9 20 28 SAD 0.0 .3 .5 +11 52 53 SAD -1.3 .2 -2.4 .3 -3.3 .4 .6 -31 20 40 FIR -5.5 .2 .0 +72 33 55 SAD 1.2 .4 .6 + 2 55 43 CID .9 .3 .7 + 5 7 6 SAD 0.0 .29 .3 .2 +43 21 1 SAD .1 .2 .9 +15 9 11 SAD .6 .38 .4	3 3 3 1 1 0 2 1 1 5 2 2 2 3 1 1 0 0 2 1 1 1 5 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	.5 .3 .3 .1 .1 .2 .1 .2 .3 .3 .3 .3 .1 .4 .3 .1 .7 .2 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	.2 .3 .1 .0 № .4 .8 .2 .5 .3 .5 .4 .1 .8 .3 .4 .4 .8 .2 .5 .4 .1 .5 .3 .2 .1 .3 .2 .1 .3 .2 .3 .3 .3 .3 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	-3.0.4 -7.4 2.2 C -6.3 -1.4 2 2.2 C -5.2 -7.3 -1.4.2 2.2.3 -0.3 -1.3.3

Table Of Observations

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-	161.9 146.6 183.9 155.5 220.4 149.9 184.3 177.3	228.5 244.3 2244.3 2216.2 201.9 194.5 236.4 167.1 159.5	2333.1 2559.7 168.7 190.2 231.9 225.6 225.6 149.9	201.8 224.0 224.0 224.1 224.1 148.9 148.5 142.5 130.7	24244 24244 24244 2424 2424 2424 244
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£	3576 3612 3609	3618 3639 3660	3705 3698 3722	3731 3748 3769 3773 3771	3816 3820 3824 3845 3850 3866
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AFGL	0000 13002 13002 13008 13008 1181 1310	1317 1320 1321 1323 1323 1326 1327 5254	1334 4092 1344 1344 1348 1350	1351 4093 5257 1353 1355 1357 1358 1360 1360	47488 47488 1366 4096 1368 5258 1369 1371
Spec Type	M4 III M3 IIIB M5 III M6 III M6 G7 IB	M4 M6 M7E 111 M6 IIIAS K5 IIIA	MS MG KY IIIAB M4 G M4 IIIA K3	K2 III M9 K3 II M7 M6 M6 K5 III K5 III K2 III	M5E M7.5E III M2 IIIA K6 M3 III K6 G M2 IIIAB
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1) m(20)	6.4 6.4	1.6 . 2 . 3 . 5 . 2 . 3 . 4 . 3 . 4 . 3 4 . 3 .	.3 -2.4 .5 .5 -3.3 .	-2.7.2 -2.2 . -1.5.2 -2.2 .	-3.3.2 -3.3.4.5 -3.3.2 -3.3.4.4
) m(11) m(20)	64 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	.3 .3 -1.5 .3 -1.1 .3 -2.9 .3 -2.7 .3 -2.9 .3 -3.5 .5 .3 -3.5 .4 .3 .5	.3 .3 -1.1 .3 -2.4 .5 .3 -5 .5 -3.5 .2 -3.3	.3 -2.4 .4 .1.5 .2 .2.2 .3.3 .3 .8 .1.0 .8 .1.5 .2 .2.2 .3.3 .4 .8 .1.0 .8 .3.3 .3 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	.36 .4 -3.7 .5 .36 .4 -1.8 .2 .3 .9 &8 .2 -3.2 .3 -2.8 .3 .4
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4) m(11) m(20)	8 6 1 - 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	.2 .3 .3 .1.5 .3 .1.6 .2 .3 .3 .3 .1.5 .3 .3 .2 .3 .3 .3 .3 .1.1 .3 .2 .5 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	.1 .3 .3	1.2 . 3 1.2 . 1.3 . C . 2.7 . 2 1.5 . 2 . 1.2 . 4 . 1.5 . 2 1.6 . 3 . 4 . ₹ . 1.0	1.4 .4 .4 .5 .4 .3.7 .5 .2 .3.2 .3 .4 .1 .6 .4 .1 .8 .2 .3.2 .3.2 .9 .4 .7 .3 .4 .1 .0 .2 .3 .3 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
0) Ref m(4) m(11) m(20)	12 AGL 1.8 .3 -1.0 .3 -3.0 . 23 SAO -1.3 2 -1.0 .3 -3.0 . 25 SAO .1 .3 -6 .2 -2.2 . 12 SAO 1.4 .3 -6 .4 .3 .1 .6 .4 .3 .1 .3 .6 .4 .3 .3 .6 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	52 SAD 1.2 .3 -1.6 .2 48 B. SAD 1.2 .3 -1.5 .3 -1.6 .2 26 SAD3 .3 -1.5 .3 -2.9 .5 5 SAD -2.0 .3 -2.7 .3 -3.5 .4 0 AGL 1.7 .3 -2.7 .3 -3.5 .4 0 SAGL 1.3 .3 -2.7 .3 -3.5 .4 0 SAGL 1.3 .3 -3.5 .4 3 .0 SAGL 1.3 .3 -2.7 .3 -3.8 .2 -4.3 .0 SAGL 1.3 .3 -3.5 .4 .3 .5 .4 .3 .5 .4 .3 .5 .4 .3 .5 .4 .3 .5 .4 .3 .5 .4 .3 .5 .5 .4 .3 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	30 AGL 1.1 .3 .9 .2 .9 .2 .9 .2 .9 .2 .9 .2 .9 .2 .9 .3 .9 .2 .9 .3 .9 .2 .9 .3 .9 .2 .9 .3 .1.1 .3 .2 .4 .5 .9 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	55 SAO 1.2 .3 -2.4 .4 5 6 CIU 1.2 C -1.3 C -2.7 .2 -2.2 . 28 SAO -1.5 .2 -1.2 .4 -1.5 .2 45 SAO -1.5 .2 -1.2 .4 -1.5 .2 3 SAO 1.6 .3 .4 W -1.0 W 31 SAO 1.0 .3 -5 .4 6 SAU 1.7 .3 -5 .4 6 SAU 1.7 .3 -5 .4	1 SAO
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Dec(1950) Ref m(4) m(11) m(20)	.0 +55 36 12 AGL 1.8 .3 -1.0 .3 -3.0 .9 +67 49 35 SAO -1.3 -2.2 -1.0 .3 -3.0 .8 +38 56 28 SAO .1 .3 -6 .4 -2.2 8 +60 29 12 SAO 1.4 .3 -6 .4 .3 .0 +9 4 12 AGL 1.4 .3 .0 +9 43 36 AGL 1.6 .3 .3 +38 39 12 SAO 1.0 .3 .8 +67 4 33 SAO 1.0 .3	0 + 1 39 52 SAD 1.2 .3 -1.6 .2 -1.6 .2 -1.5 30 48 AGL 1.2 .3 -1.5 .3 -	46 30 AGL 1.1 .3 .5 9 .2 9 .2 9 .2 9 .2 9 .2 9 .3 9 .2 9 .3 9 .2 9 .3 9 .3 9 .3 9 .3 9 .3 9 .3 9 .3 9 .3 9 .3 9 .2 9 .3 9 .2 9 .3 9 .2 9 .3 9 .2 9 .3 9 .2 9 .3 9 .2 9 .3 9 .2 9 .	8 +26 23 55 SAO 1.2 .3 -2.4 .4 .6 .2.7 .2 -2.2	2 -62 34 1 SAO
950) Dec(1950) Ref m(4) m(11) m(20)	8.0 +55 36 12 AGL 1.8 .3 -3.0 .3 -3.0 .3 33.1 +11 2 23 SAO3 .2 -1.0 .3 -3.0 .3 .9 +67 49 35 SAO .1 .36 .2 -2.2 35.8 +38 56 28 SAO .1 .36 .4 18 +60 29 12 SAO 1.4 .3 22.0 +9 4 12 AGL 1.4 .3 22.0 +9 43 12 SAO 1.6 .3 39.0 -9 43 36 AGL 1.3 .3 1.8 +67 4 33 SAO 1.0 .3	25.0 + 1 39 52 SAO 1.2 .3 -1.6 .2 30.0 +69 24 48 SAO 1.2 .3 -1.6 .2 49.0 -15 30 48 AGL 1.5 .3 -1.5 .3 -1.5 .3 5.9 +25 26 59 CIO .3 .3 -1.1 .3 -2.9 .5 37.7 +31 10 5 SAO -2.0 .3 -2.7 .3 -3.5 .4 44.0 - 6 7 5 0 AGL 1.7 .3 40.5 -24 39 6 FIR 6.5 +56 57 0 SAO 1.3 .3	34.0 - 1 40 30 AGL 1.1 .3 40.5 - 3 45 34 5.0 7.9 -32 50 48 FiR 27.0 +49 56 12 AGL 1.6 .3 .9 +34 36 19 SAO9 .3 -1.1 .3 -2.4 .5 2.7 + 55 52 FIR 50.0 + 7 55 46 SAO 1.1 .3 44.0 +64 9 27 SAO 1.6 .4	44.8 +26 23 55 SAO 1.2 .3 -2.4 .4 -2.7 .2 -2.2 .3 44.0 -23 47 56 CIU 1.2 C -1.3 C -2.7 .2 -2.2 .259.8 +36 22 45 SAO -1.5 .2 -1.2 .4 -1.5 .2 -1.5 .2 -1.2 .4 -1.5 .2 -1.5 .2 -1.2 .4 -1.5 .2 -1.5 .2 -1.2 .4 -1.5 .2 -1.5 .2 -1.5 .2 -1.5 .2 -1.5 .2 -1.5 .2 -1.5 .2 -1.5 .2 -1.5 .2 -1.5 .2 -1.5 .2 -1.5 .2 -1.5 .2 -1.5 .3 W -1.0 W 30.2 +35 19 31 5AO 1.0 .3 -5 .4 W -1.0 W 5.8 +70 3 6 SAU 1.7 .3 -5 .4 .7 .3 -5 .4 .7 .3 .7 .4 +81 33 0 SAO .7 .3	59.2 -62 54 1 SAO
Dec(1950) Ref m(4) m(11) m(20)	8.0 +55 36 12 AGL 1.8 .3 -1.0 .3 -3.0 .3 .9 +67 49 35 SAO3 .2 -1.0 .3 -3.0 .3 .9 +67 49 35 SAO .1 .36 .2 -2.2 5.8 +38 56 28 SAO .1 .36 .4 .3 2.0 +9 4 12 AGL 1.4 .3 5.0 +64 58 30 IRC 1.4 .3 5.0 +64 58 30 IRC 1.4 .3 9.0 - 9 43 36 AGL 1.3 .3 9.0 - 9 43 36 AGL 1.3 .3 1.8 +67 4 33 SAO 1.0 .3	5.0 + 1 39 52 SAD 1.2 .3 0.0 +69 24 48 SAD 1.2 .3 9.0 -15 30 48 AGL 1.5 .3 2.1 +13 25 26 SAD3 .3 -1.5 .3 5.9 +25 26 59 CID .3 .3 -1.1 .3 -2.9 .5 7.7 +31 10 5 SAD -2.0 .3 -2.7 .3 -3.5 .4 4.0 -6 5 0 AGL 1.7 .3 4.0 +51 17 36 AGL 1.3 .3 0.5 -24 39 6 FIR 6.5 +56 57 0 SAG 1.3 .3	4.0 - 1 40 30 AGL 1.1 .3 0.5 - 3 45 34 5.0 7.9 -32 50 48 FIR 7.0 +49 56 12 AGL 1.6 .3 2.7 + 49 56 12 AGL 1.6 .3 2.9 +34 36 19 5AO9 .3 -1.1 .3 -2.4 .5 2.7 + 55 54 45 5AU .3 .25 .5 4.0 -26 55 52 FIR 6.0 + 7 55 46 5AO 1.1 .3 4.0 +64 9 27 5AO 1.6 .4	4.8 +26 23 55 SAO 1.2 .3 -2.4 .4 -2.7 .2 -2.2 .4 .0 -23 47 56 CIU 1.2 C -1.3 C -2.7 .2 -2.2 .7 .8 -8 26 28 SAO -1.5 .2 -1.2 .4 -1.5 .2 -1.5 .2 -1.2 .4 -1.5 .2 .2 .3 .3 W -1.0 W	6.9 -14 28

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27) Spe	4.0 .3 M9 III M7E M7E 8.9 C C6 C5.4 K2 III M2.5 G	2.1.3 M1 G 125-86E M2 151 7.0.6 K4 111	6. 8. 8. 9. 8. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9.	.0 .6 M6	-2.0 .3 M6 -6.5 .6 C K3 II M5E C6.3 M7
m(27) Spe	3.7 .2 -4.0 .3 M9 III M2 IIII M2 IIII M7E B.7 C -8.9 C C6 9 .2 K2 IIII M2.5 G 3.2 .2 -4.2 .3 M2.5 G	3.2 .4 .2.1 .3 M1 G 3.2 .4 .45 .82 [1] 3.7 .4 .7.0 .6 K4 [1] 3.3 .4 .87 v	5.4.4 CE FO :: 8.4.2 -2.9.3 C FO :: 1.2 C	5.8 .4 -6.8 .6 8.0 .4 -9.0 .6 K5 III 3.4 .2 3.0 .5 5.4 .4 -7.0 .6 M6 4 W M6	.1 .2 .2 .0 .3 M6 .9 .4 .6 .5 .6 .6 .7 .5 . W K3 II .8 .4 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6
m(11) m(20) m(27) Spe	1.9 C -3.7 .2 -4.0 .3 M9 111 1.4 C M2 III 4.2 .3 -5.1 .3 M7E 7.7 C -8.9 C C 7.7 C -9.2 C5.48 .3 K2 III M2.5 G8 .2 -3.2 .2 -4.2 .3 M2.5 G	2.2.4 -3.0.5 -2.1.3 M1 G 1.8.4 -3.2.4 -3.2.4 IIS-M6E 1.0.5 -3.7.4 -7.0.6 x4 :11 2.4.4 -3.3.4 R7.0.6 x4 :11 2.4.4 -3.3.4 R7.0.6 x7.0.6 x7.0.0.6 x7.0.6 x7.0.0.6 x7.0.6 x7.0.0.6 x7.0.6 x7.0.6 x7.0.6 x7.0.0.6 x7.0.0 x7.0.0 x7.0.0 x7.0.0 x7.0.0 x7.	5.1 .3 -5.4 .4 FO :: 3.0 .3 -3.4 .2 -2.9 .3 C	4.8 .4 <-8.0 .4 -9.0 .6 K5 III 1.6 .4 -3.4 .2 CE	1.0 .4 -1.1 .2 -2.0 .3 M6 2.1 .4 -3.9 .4 -6.5 .6 1.6 .4 -2.7 .5 C 1.3 W 1.2 W K3 II 1.3 W 1.2 W K5 II 1.3 W 2 -1.8 C C.9.6 C -10.6 .6 PEC
(11) m(20) m(27) Spe	C -1.9 C -3.7 .2 -4.0 .3 M9 III 3 1.4 C M2 III 3 -4.2 .3 -5.1 .3 M7E 3 -7.7 C -8.9 C C C C C C C C C C C C C C C C C C C	-2.2 .4 -3.0 .5 -2.1 .3 M1 G -1.8 .4 -3.2 .4 155-M6E -2.7 .4 -5.8 .4 -7.0 .6 N2 III -2.2 .4 -5.8 .4 -7.0 .6 N4 III -2.4 .4 -3.3 .4 M2 1.6 C 1.8 C 87 v	3 -5.1 .3 -5.4 .4 FO :: 3 -3.0 .3 -3.4 .2 -2.9 .3 C	-4.8 .4 <-8.0 .4 -9.0 .6 K5 III 33 .4	3 -1.0 .4 -1.1 .2 -2.0 .3 M6 -2.1 .4 -3.9 .4 -6.5 .6 -1.6 .4 -2.7 .5 C 3 -1.1 .2 W K3 II 3 -1.1 .2 -1.8 C 6.3 3 -5 .5 -4.8 .4 M7 C -10.6 .6 PEC
(4) m(11) m(20) m(27) Spe	1.0 C -1.9 C -3.7 .2 -4.0 .3 M9 III .7 .3 1.4 C M2 III 3.1 .3 -4.2 .3 -5.1 .3 M7E 3.5 .3 -7.7 C -8.9 C C C C C C C C C C C C C C C C C C C	7 .3	3 .3 .5 .1 .3 .5 .4 .4 F0 :: 9 .3	-5.8 .4 -6.8 .6 -4.8 .4 <-8.0 .4 -9.0 .6 110 .3 -3 .4 -5.2 12 .4 -1.6 .4 -3.4 .2 -5 .2 .6 -5 .3 -2.5 .4 -5.4 .4 -7.0 .6 -9 .3 -3.2 -4 W M6 1.4 .3 -1.9 .3 -2.6 .2 -2.1 .3 C6.4	0.0 .3 -1.0 .4 -1.1 .2 -2.0 .3 M6 -2.1 .4 -3.9 .4 -6.5 .6 -1.6 .4 -2.7 .5 7 .3 -1.1 .2 -1.8 C 7 .3 -1.1 .2 -1.8 C 6.3 1.1 .35 .5 -4.8 .4 M7 1.1 .35 .5 -9.6 C -10.6 .6 PEC

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-	150.4 2386.0 239.6 265.1 147.3 269.0 190.0 130.9	245.1 132.7 289.0 135.9 289.8 269.3 289.4 289.9	142.8 258.1 282.9 158.1 266.3 168.3 168.3 241.8	22 22 22 22 22 22 22 22 22 22 22 22 22	240.7 2505.3 2505.3 2505.3 2505.4 2505.4 2505.4 2505.4 2505.4 2505.4
8 0 0 8	03-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	1111111111	1211111111	111111111111111111111111111111111111111	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
Comments	S S S S S S S S S S S S S S S S S S S	VY LEG PLAN. NEB		60	
8 DE 82	41 UMA VV LEO NUU HYA 42 UMA 46 LM1 W LEO 00 33481	56 LE0 DO 33498 AG CAR VW UMA R CRT	ALF UMA SX LEO CV UMA CO UMA DO 33591 PSI UMA DO 3057 NGC 3581	72 LEG CS DRA NGC 3603 RX CRT NUU UMA	SVS 1731 56 UMA 12 LEO 1 CRT DO 33683 EPS CRT ST UMA AF LEO IC 2872
ă.	4 4 2 3 2 4 4 4 2 3 2 4 4 2 4 7 4 2 4 7 4 7 4 7 4 7 4 7 4 7	4267	4301 4333 4335 4335	4362	4 4 4 0 2 4 4 0 2 4 4 0 2
TMSS	60204 10233 -20217 -20215 30226 10234 10234 10237	10235 70103 70104 -20222 200	60208 201 50208 40222 40223 10236	20227 80023 -20225 30230 -30174	40225 20228 -20227 50210 -10254 50211
AFGL	44 115 1433 14433 14430 14440 1442	1446 1448 1118 1419 1450 1450 1452 1452	1454 1455 4123 1457 1462 1463 1460 4802S	4 1 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4130 48115 482 483 483 483 488 488 488 488 488 488 488
Spec Type	M2 111AB M7 K3 111 K3 111 K3 6,5 3 C6,5 K0 111 M7E 111 M8E 111	M5.5 III M6.42E-85E M5 M7 M1 IIIB	MG IIIA M7 M7 IIIA M3 IIIAB M4 G	M3 III ► M5 M5 M5 M5 M5 M5 M6 M6 M6 M6 M7 M6 M6 M6 M6 M7 M6	G8 IIB M6 M4 M2 M2 K5 III M4 III
m(27)	4 6 6.	φ. κ. α. φ. κ.	9. 9.	9. 9.	
m(20)	4 1 4 1. 0 4 - 4 6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4			1 1 1 1 4 1 80.0 6 10.02 12 4 10.4 4 10	
m(11)	4. 1	1 11 11 11 4 4 4 4 4 4 4 4 4 4 4 4 4 4	. 4.1.1 0. 0.0.0.4. 0.7. 0. 4.0.4.4. 0.0.	1 - 1 - 1 - 1 - 4 1 - 4 1 - 4 1 - 1	
m(4)					
Dec(1950) Ref	7.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	+ 6 27 9 SAD +74 36 14 SAD -60 9 36 AGL -59 50 18 AGL +70 15 25 SAD -60 55 30 AGL -59 33 36 AGL -60 33 36 AGL -60 33 36 AGL	+62 1 17 SAD -2 56 5 SAD -49 26 51 SAD -11 11 42 AGL +36 34 51 SAD +43 28 44 SAD +44 46 13 SAD +11 34 24 SAD -11 34 24 SAD -11 2 9 CIO	-60 34 54 AGL +75 24 42 IRC -60 58 38 CIU -61 12 36 AGL -61 12 36 AGL -23 52 19 SAO +33 52 3 SAO -30 11 58 SAO -14 30 28 SAO	-55 30 30 AGL +43 45 26 SAGL +17 7 12 IRC -19 38 0 SAG +48 52 50 SAG -10 35 5 SAG +16 29 46 AGL +45 27 38 SAG -62 41 42 IRC -62 41 48 AGL
RA(1950)	0 43 15.3 0 45 14.0 0 46 9.5 0 47 9.3 0 49 11.3 0 51 31.2 0 51 15.4	53 25.7 53 25.7 50 53 35.7 50 54 14.0 50 58 38.0 50 58 38.0 50 58 36.0 50 58 50.0 50 58 50.0 50 58 50.0 50 58 50.0	0 - w 4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1112 32.8 0.22 1112 38.0 112 2 1111 12 2 38.0 112 2 1111 12 2 1111 12 12 12 12 12 12 1	20 2 11 2 2 3

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-	266.8 279.5 133.0 274.3 283.8 297.4 182.8 127.9	255.3 204.9 204.9 206.9 206.9 176.8 150.3	288.9 2286.0 2286.0 2286.6 128.0 1124.0 1169.5 21.5	136.6 132.7 140.3 181.4 253.4 125.4 291.9 270.3	295.8 298.2 298.2 198.1 298.1 299.1 296.5 296.5 256.6
sqo	7 1 2 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2	0 00		6 6 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	12222222
Comments		w ww		w w	PLAN. NEB
Names	87 LEO LAM DRA RR CRT GC 15844 DO 14449 DO 33752	GC 16008 GC 16008 TV UMA NUU VIR AZ UMA	II HYA X CEN RU CRT S CRT SVS 101227 DO 14499	Z UMA LKHA 316 GK COM DO 33898	RW VIR HE2-77 NGC 4134 G298.2-0.3 EPS CRV 4 COM
£	4432 4449 4449	4491 4491 4517 4518	4532	4586 4608	4630 4640
TMSS	206 70107 -10256 -30177 40226 80024	10243 -20230 40227 10245 50213 40228	-30163E -30182 -40081E -30183 -10259 -10259 -40230	60213 20236 10250	-10263 -20233 30235 -10264
AFGL	1492 1493 1494 1495 1497 1498 1500 5261	1502 4134 1503 5262 5263 4135 1509 1510	4136 1512 4137 1515 1516 4830S 1517 4138 4139	1519 1521 1523 1523 1527 1526 1142 5264 5265	4143 1535 4144 4145 4146 1536 1536 15263 1542
Spec Type	K4 111 M0 111 M2 1118 M7	M2.5 G M2.5 G M4 III M1 IIIAB K0 III	MB M4 G M5-M6E M5 M3 7E M7 IIB	MGE M4 G M2 III G8 IIIAP	M5 III K2 III K4 III
m(27)	- 2 . 6	6 . 6 . 6 . 6 . 6 . 6 . 6 . 6 . 6 . 6 .		6 4 4 6 8 4 6 8 6 6 6 6 6 6 6 6 6 6 6	7. 8. 6
m(20)	2. 6. 1- 2. 6. 1- 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.	6 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	2. 1.1.1. 4. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.	- 6 6 1 4 1 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
m(11)	21.1 E 1 8 7 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	21.1 1.1.1 1.0.0 0.7.20 4.0.4 4.4.4.00	2. 1. 1. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	2 1 1 1
m(4)	0 400 711			 	
) Dec(1950) Ref	5 - 7 43 39 SAD 6 -22 21 6 ASL 6 -12 6 SAD 4 -12 6 20 SAD 4 -30 48 40 SAD 0 -72 57 24 AGL 0 +35 8 24 IRC 6 +77 52 21 SAD 6 + 4 12 8 FIR	9 + 8 24 40 SAC -5 -16 20 35 SAC 3 + 2 43 43 FIR 6 + 2 57 17 FIR -0 -62 11 0 AGL 1 -36 10 18 SAC 3 + 6 48 35 SAC 0 +48 3 24 SAC 1 +43 44 57 SAC	1 -35 42 31 SAD 6 -41 28 39 C1D 2 -27 18 16 SAD 7 - 7 19 6 SAD 7 + 8 30 6 AGL 0 +37 25 12 IRC 3 +37 2 7 SAD 0 -39 8 12 AGL	2 +58 8 59 SAG 0 +64 5 36 AGL 0 +53 0 36 AGL 1 +19 41 53 SAG 1 -34 11 24 AGL 0 -34 11 24 AGL 6 -21 45 4 FIR 7 + 8 56 47 FIR 2 + 9 11 7 FIR	0 -51 41 0 AGL 1 - 6 29 15 SAO 0 -63 0 30 AGL 0 +29 26 48 AGL 5 -62 3 20 CIO 9 -22 0 30 SAO 0 +26 8 56 SAO 1 -22 40 38 FIR 4 - 5 45 56 FIR 0 +19 18 54 AGL
RA(1350)	11 27 57. 11 28 27. 11 29 27. 11 29 27. 11 30 25. 11 32 28. 11 34 36.	11 35 52. 11 36 20. 11 38 32. 11 38 40. 11 42 58. 11 43 25. 11 43 25.	11 46 13. 11 46 11. 11 47 19. 11 58 33. 11 50 11. 11 52 39. 11 53 52.	11 55 54. 11 56 20. 11 56 47. 11 57 31. 11 57 44. 12 2 50. 12 2 56.	22 12 2 4 4 18 12 2 4 19 12 2 12 12 12 12 12 12 12 12 12 12 12 1

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-	298.9 149.0 149.0 299.8 290.5 136.5 291.8 292.1	1999.6 1289.9 125.7 125.7 300.2 300.5 124.6 297.9	290.3 290.3 290.0 290.0 290.1 298.1 126.2	298.3 126.4 300.3 300.3 122.3 122.2 121.2 6	3055 3055 3055 3055 4055 505 505 505 505 505 505 505 505
S	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1 1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1	22 - 12 - 12 - 12 - 12 - 12 - 12 - 12 -	12212211	21121212
Comments	E 60	CQ DRA			IC 3953 EO
8	CVN CVN CVN UMA	C C C C C C C C C C C C C C C C C C C	4535 4543 3562 4615 CRV VIR	OCC CCC CM CM C	V C C C C C C C C C C C C C C C C C C C
Names	EPS 3 3 6C 1(GAM 73 B B X B B X B B X B B T W	N N N N N N N N N N N N N N N N N N N	GAR SECONDE	DEL RY EPS
Ϋ́	4666 4671 4690 4726	4737 4745 4763 4763	4807	4825 4846 4902 4909	4910 4920 4932
TMSS	40232 50217 -10268 60217 217	30238 60218 220 70113	30241 -20242 221 10256 60220	223 50219 224 -10272 -10274 60222 50222	226 70116 20251 10261
AFGL	4148 5269 1543 4149 5270 1545 1547 1550	1551 1552 1554 1555 4150 5272 4151 5273 4152	4153 4154 4155 4156 5274 1564 1565 1565 1565	5275 1571 1571 1576 1581 5276 1584 1584 1585	1586 4159 1588 5277 5278 1589 5289 1593 1593
Type	1	8 ₹ 1	1 4 8	H H	00 Z Z
Spec	M1 II M6 G M1 II M3 G M3 III	M	M5 M6 M4.5E M7.11	CS.5 CS.1E CS.1E MS.1E MS.1I	M3 1113 M2 M2 M3 1113 M1 1113 M8 1113
9	111 G		5 6 3 11 7 15	0 V 8,15 5 G 0 PV 5 11	
27) Spec	.5 .3 M1 II .3 .3 M6 G. .7 .3 M1 II .7 .3 M3 G. M3 II .6 .3 C5,3E	2. 4. 2. 3. M.7. III	5 6 3 11 7 15	2.6.3 C5.5 C8.1E M5.6 M3.1I M9.11	M3 II C4.5 M2 M2 II M1 II M1 II 3.4 .3 M8 II
m(27) Spec	6.0 .4 -7.3 .6 2.2 .2 -2.5 .3 M1 II 1.9 C M6 G 2.7 .2 -3.3 .3 M1 II 1.0 .2 -3.7 .3 M3 G M3 II 1.1 .2 -2.6 .3 C5.3E	3.0 .2 -2.4 .3 M7 III 3.5 .5 M3 III 1.6 .2 -2.1 .3 M3 III 2.8 .5 -2.1 .3 M3 III 3.4 .2 -3.6 .3 4.5 .4 -6.5 .6 G5 II	2.6 .5 8 .2 9 .2 M5 1.2 .2 M6 M3 II M4.5E M7 II	2.5.2 -2.6.3 F0 V 2.3 C C5.5 2.1.2 CB.1E M5 G 1.2.2 M3 II 2.1.2 A0PV	1.7 .2 2.7 .5 1.8 .2 1.3 .2 M2 M2 M2 M2 M3 II 2.1 .2 M6 II 3.4 .2 -3.4 .3 M8 II
(11) m(20) m(27) Spec	.1 .4 -6.0 .4 -7.3 .6 M1 II .2 .4 -1.9 C -3.3 .3 M1 II .8 .4 -1.0 .2 -3.7 .3 M3 G M3 II .9 .3 -1.1 .2 -2.6 .3 C5.3E	KY III 4 .2	.6 .4 -3.4 .5 .5 .4 - 9 .2 .0 .4 -2.1 .2 M5 .2 .4 - 2 .1 .2 M6 .2 .4 W M4.5E .9 .2 -3.5 .2 M7 II	2.1 .3 -2.3 C C5.5 1.7 .3 -2.1 .2 C8.1E M5 G 9 .2 -1.2 .2 M3 II 1.5 C M3 II 1.5 C A0PV 7 C7 .2 M5 II	1.5 .3 -1.7 .2 M3 II 1.9 .4 -2.7 .5 1.1 .2 -1.7 .2 C4.5 -1.8 .2 M2 -1.3 .2 M2 -2.1 .2 M2 -1.6 .2 M2 -2.1 .2 G8 II 2.5 .3 -3.4 .3 M8 II
(4) m(20) m(27) Spec	-3.1 .4 -6.0 .4 -7.3 .6 -9.3 0.0 .4 -1.9 C M6 G .9.3 -8.4 -1.0 C -3.3 .3 M1 II 1.2 .3 -8.4 -1.0 .2 -3.7 .3 M1 II 1.2 .3 M3 G 1.1 .3 -9.3 -1.1 .2 -2.6 .3 C5.3E	1.3 .3 1.4 .3 .2.2 .3 .3.0 .2 .2.4 .3 M2 III 1.1 .3 4 .4 .3.5 .5 1.6 .4 .2 .3.5 .5 1.6 .4 .2.8 .5 1.5 .2 .3.4 .2 .3.6 .3 1.5 .2 .3.4 .2 .3.6 .3 2.3 .5 .4.5 .4 .6.5 .6 G5 II	-1.6.4 -3.4.5 -1.6.4 -3.4.5 5.49.2 5.3 -1.0.4 -2.1.2 M5 .2.3 -1.2.4 M6 .6.3 -1.2.4 M M6 .2.3 .6. C .4. W M4.5E .2.3 -1.9.2 -3.5.2 M7 II	1.6 .4 -2.1 .3 -2.3 C C5.5 .2 -2.6 .3 F0 V C5.5 .2 .3 -1.7 .3 -2.1 .2 C8.1E M5 G C0. 2 -1.1 .3 -2.1 .2 M3 II M5 G C0. 3 1.5 C	1.5 .3 -1.5 .3 -1.7 .2 M3 II 6 .3 -1.1 .2 -1.7 .2 C4.5 -1.8 .2 M2 -1.3 .2 M2 -2.1 .2 M1 II -2.1 .2 G8 II 1.6 .3 -2.5 .3 -3.4 .2 -3.4 .3 M8 II
950) Ref m(4) m(11) m(20) m(27) Spec	42 AGL	2 45 SAO 1.3 .3	7 36 AGL -1.6 .4 -3.4 .5 3.20 AGL -5.6 .5 -5 4 .5 3.4 .5 3.00 AGL -5.4 -9.2 -9.2 AGL -5.4 -9.2 AGL -9.2 AGL -9.2 AGL -9.2 AGL -5.4 -9.2 AGL -9.2 AG	2 45 F!R 2 48 SAO 1.6 .4 2 48 SAO -1.4 .2 -2.1 .3 -2.3 C C5.5 5 2 EIC 2 .3 -1.7 .3 -2.1 .2 C8.1E 8 23 SAO .5 .3 -9 .2 -1.2 .2 M3 II 8 4 5 SPC 0.0 .2 -1.1 .3 -2.1 .2 M3 II 8 5 SAO -3 .2 -7 C -7 .2 M5 II 9 18 AGL -1.8 .4 .4	6 36 A3L 6 36 A3L 5 52 543 - 6 .3 -1.1 .2 -1.7 .2 2 52 FIR 3 27 FIR 1 31 FIR 5 52 52 5 52 52 5 52 543 - 6 .3 -1.1 .2 -1.7 .2 1 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9
C(1950) Ref m(4) m(11) m(20) m(27) Spec	2 43 42 AGL	KH III 5 59 22 SA0 1.3 .3 4 41 34 SA0 -1.4 .3 -2.2 .3 -3.0 .2 -2.4 .3 M7 III 9 28 41 SA0 -1.4 .3 -2.2 .3 -3.0 .2 -2.4 .3 M7 III 6 50 0 SA0 -3.2 C -3.4 .4 -3.5 .5 M3 II 6 50 6 SAC -3.2 C -3.4 .4 -2.8 .5 5 14 33 SPC -1.6 .4 -2.8 .5 1 21 0 AGL -1.5 .2 -3.4 .2 -3.6 .3 7 14 SAO .5 .3 -2.3 .5 -4.5 .4 -6.5 .6 65 II	36 AGL 12 AGL 20 AGL 36 AGL 36 AGL 36 AGL 37 A	45 F!R 32 SAQ 1.6 .4	3 40 8 5A0 -1.5 .3 -1.5 .3 -1.7 .2 M3 II 8 45 36 A3L 6 15 52 5A0 -6 .3 -1.1 .2 -1.7 .2 2 52 52 FIR 7 40 42 5AC .7 .3 3 41 31 FIR 8 25 5.2 FIR 8 25 5.2 FIR 113 39 5AG .8 .3 -2.5 .3 -3.4 .3 M8 II
50) Dec(1950) Ref m(4) m(20) m(27) Spec	0.0 -62 43 42 AGL -3.1 .4 -6.0 .4 -7.3 .6 8.0 -12 31 55 FIR -2.2 .2 -2.5 .3 7.5 +40 56 18 SAO .9 .3 0.0 .4 1.0 -67 40 57 SAO -1.5 C -2.2 .4 -1.9 C M6 G 9.7 -11 45 14 FIR -9 .3 -8 .4 -2.7 .2 -3.3 .3 M1 II 1.3 +49 15 41 SAO .9 .3 -8 .4 -1.0 .2 -3.7 .3 M3 G 3.9 -11 32 6 SAO 1.2 .3 M3 G 0.2 +57 3 17 SAO 1.1 .3 -9 .3 -1.1 .2 -2.6 .3 C5.3E	6.9 +28 32 46 SAO 1.3 .3	3.0 + 8 27 36 AGL 2.0 -61 34 12 AGL 3.4 .5 8.3 + 8 23 20 AGL 1.0 + 6 18 36 AGL 8.0 +10 17 12 FIR 8.0 +10 17 15 54 IRC 9.0 -17 15 54 IRC 9.3 + 2 7 46 5AO 7.7 + 7 15 47 5AO 7.7 + 7 15 5AO 7.7 + 7 15 5AO 7.2 3 -1.9 .2 7.7 + 7 15 5AO 7.2 3 -1.9 .2 7.7 + 7 15 5AO 7.2 3 -1.9 .2 7.7 + 7 15 5AO 7.2 3 -1.9 .2 7.7 + 7 15 5AO 7.2 3 -1.9 .2 7.7 + 7 15 15 15 15 15 15 15 15 15 15 15 15 15	7.3 - 5 2 45 F:R 7.5 - 1 10 32 SAO 1.6 .4 7.1 +45 42 48 SAO -1.4 .2 -2.1 .3 -2.3 C C5.5 5.4 + 4 25 2 EIC .2 .3 -1.7 .3 -2.1 .2 C8.1E 9.6 -14 48 23 SAO .5 .3 -1.7 .3 -2.1 .2 C8.1E 9.6 -14 48 23 SAO .5 .3 -1.7 .3 -2.1 .2 MS II 0.1 +56 13 51 SAO 1.0 .2 -1.1 .3 -2.1 .2 M3 II 0.1 +56 13 51 SAO 1.0 .3 1.5 C A0PV 9.7 +47 28 3 SAO -3 2 -7 C -7 .2 M5 II 1.0 -52 43 19 AGL -1.8 .4	5.0 + 3 40 8 5A0 -1.5 .3 -1.5 .3 -1.7 .2 M3 II 5.0 -68 45 36 A3L 5.0 -68 45 36 A3L 7.1 +66 75 52 5A06 .3 -1.1 .2 -1.7 .2 2.4 - 2 52 52 FIR 3.9 +23 23 27 FIR 7.1 +17 40 42 5AC 7.3 -1.3 .2 M2 7.1 +17 40 42 5AC 7.3 -2.1 .2 9.7 +78 25 25 57 9.7 +5 27 15 5AO -1.6 .3 -2.5 .3 -3.4 .2 -3.4 .3 M8 II
) Dec(1950) Ref m(4) m(11) m(20) m(27) Spec	0 -62 43 42 AGL	No. 11 13 13 13 13 13 13 13 13 13 13 13 13	-2.6 .5 .0 -61 34 12 AGL .3 + 8 23 20 AGL .0 + 6 18 36 AGL .0 + 10 17 12 FIR .0 -17 19 24 IRC .1 - 7 15 24 IRC .3 + 2 7 46 SAO .7 + 7 15 47 SAO .4 + 56 7 15 SAO .4 + 56 7 15 SAO .1 - 6 .3 -1.2 .2 M6 M3 II M4.5E	-2.5.2 -2.6.3 FIR -2.5.1 -2.5.2 -2.6.3 FO V 1.6.4 + 4.25 2 ELC 2.3 -1.7.3 -2.1.2 CB.1E CB.	0 + 3 40 8 540 -1.5 .3 -1.5 .3 -1.7 .2 M3 II 0 -68 46 36 471

Table Of Observations

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-	119.6 311.9 314.1 340.6 304.9 118.1 306.3 305.3	312.9 305.7 305.7 305.7 314.1 320.1 320.1	111.2 120.9 120.9 107.7 107.6 10.0 110.0	311.3 311.3 311.3 320.6 320.8 320.8 323.3	308.6 310.9 108.2 308.2 308.9 309.3 309.3 309.3 309.3 809.8
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H.	4949	4998 5015 5020	5052 5056	5080 5095 5101	5134 5154 5150 5171
TMSS	10264 10265 20254 -10280	229 230 10267 10270 -20249	233 50227 40245 -10286	-20254 -10288 -10290 235	50231 -10293 -20258
AFGL	5281 1597 4160 5282 4161 5283 4162 1602	5285 1604 4164 4165 1606 1610 1611 1614	5286 5287 1617 1620 1620 1622 5288 4167 4168	4170 4171 4171 4172 5289 1633 1633 1634 4173	4174 1642 1643 1643 4176 4177 4178 4178 4179
Туре	∀	11 A B B B B B B B B B B B B B B B B B B	IAB		I IAB IAB
Spec	M5 II M3	M	M6 M4 G M4 II	M6.5E M2 II M6.5E K6	M2 III M2 III M2 III M2 II
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(27) Spec	3.2 .3 NIS NA5.5 NA5.11 NA5.11 A 5.1	6.5.6 3.6.3 M7 II M6 II M2 II M6 II		M6.5E .3 .6 M2 II M6.5E M6.5E	6.9.7 M2 II M2 II M2 II 6.8.7 G8 IA M2 II
(20) m(27) Spec	3.2 .2 -3.2 .3 N5 M4.5 M4.5 3.7 .5	3.3 .5 M5 5.2 .4 -6.5 .6 M7 II 4.2 .2 -3.6 .3 M7 II M8 II M2 II M2 II M2 II M2 II	4.4 .2 -4.3 .3 M6 M4 G M4 G M4 II B1 IV B1 IV B1 IV	4.8 .4 M6.5E 3.0 .4 4.4 .4 -6.3 .6 1.3 .2 M2 II 3.2 .5 M6.5E	5.2 .5 -6.9 .7 M4 II 2.8 .5 M4 II 1.1 W M2 II 4.3 .4 -6.8 .7 G8 IA 3.8 .4 -6.2 .6
(11) m(20) m(27) Spec	4 .2 -3.2 .2 -3.2 .3 N5 M4.5 0.6 C6 .2 M5 II 1.9 .4 -3.7 .5 -4.0 .3 -3.0 .4 -7.6 .6 M3 1.3 .2 -3.0 .2 -3.2 .3	1.2 .3	4 .4 .2 -4.3 .3 M6 M6 M4 G M4 II IV C -2.1 .2 B1 IV B1 IV 2.1 .4 -3.2 .4 2.1 .4	2.0 .4 M6.5E 2.6 .5 -4.4 .4 -6.3 .6 1.1 .3 -3.2 .5 M6.5E 1.5 .3 M6.5E 2.1 .4 M6.5E	1.8 .4 -5.2 .5 -6.9 .7 M4 II 2.1 .5 -2.8 .5 M M2 II 7. W 1.1 W M2 II 1.7 .4 -4.3 .4 -6.8 .7 G8 IA 2.3 .4 -3.8 .4 -6.2 .6 M2 II 1.4 .3
4) m(11) m(20) m(27) Spec	.9.3 .9.3 0.3 C -0.6 C6.2 -1.9.4 -3.7.5 -3.0.4 -7.6.6 1.2.3 -1.3.2 -3.0.2 -3.2.3	.8 .3 -1.2 .3 -2.7 .2 M5 -1.3 .5 -3.3 .5 -3.5 .4 -6.5 .6 M5 11 4 .3 -4.2 .2 -3.6 .3 M7 II M6 II .2 .3 .3 .3 -4.2 .2 -3.6 .3 M7 II .2 .3 .3 .4 -2.1 .2 M6 II .2 .3 .3 .4 -2.1 .2 M6 II .2 .3 .3 .4 -2.1 .2 M6 II .3 .4 .3	FIR SAC 1.4 .34 .4 .2 -4.3 .3 M6 SAC 1.4 .3 1.7 C 2.1 .2 M8 II SAC 1.3 .3 1.7 C 2.1 .2 B1 IV B1 IV AGL -2.1 .4 -3.2 .4 AGL -2.1 .4 -3.4 .4	3.2 .2 -4.2 .3 -4.8 .4 M6.5E -2.6 .5 -4.4 .4 -6.3 .6 -1.1 .3 M2 II -2 .2 -1.1 .3 -3.2 .5 M6.5E 1.8 .4 -2.1 .4 M6.5E 1.3 .3 M4	-1.8.4 -5.2.5 -6.9.7 M4 II -2.1.5 -2.8.5 M M2 II 6.3.7 W 1.1 W M2 II 0.0.0 -3.1.4 -4.3.4 -6.8.7 G8 IA -2.3.4 -3.8.4 -6.2.6 M2 II
m(4) m(11) m(20) m(27) Spec	AG .9.3 AG .12.3 AG .13.2 AG .13.2 AG .13.2 AG .13.2 AG .13.3 AG	.8 .3 -1.2 .3 -2.7 .2 M5 -1.3 .5 -3.3 .5 -3.6 .3 M7 III 14 .3 -2.4 .2 -3.3 .3 -4.2 .2 -3.6 .3 M7 III 17 .3 .3 .4 -2.1 .2 GB III MB III .2 .3 -9.4 -2.1 .2 M6 III .2 .3 -9.4 -2.1 .2 M6 III	PC 1.4 .34 .4 .2 -4.3 .3 PC 1.4 .3 -2.1 .3 M6 PC 1.4 .34 .4 PC 1.4 .3 PC 1.5 PC 1.	-3.2 .2 -4.2 .3 -4.8 .4 M6.5E -3.0 .4	GL -1.8 .4 -5.2 .5 -6.9 .7 M4 II AO .3 .3 .3 C -2.8 .5 M M2 II AO .6 .3 .7 W 1.1 W M2 II GL -1.7 .4 -4.3 .4 -6.8 .7 G8 IA GL -2.3 .4 -3.8 .4 -6.2 .6 GL -1.4 .3 .4 -6.2 .6

Table Of Observations

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-	318.0 316.3 82.7 309.9 355.8 309.0 330.6 66.1	5.3 320.3 38.1 319.3 341.3 72.2 72.2 78.3	307.2 311.5 311.4 323.0 323.0 329.1 85.3 334.8	323.24 333.55 331.33 331.33 332.22 330.99	3333.4 3322.0 3422.0 347.5 344.7 314.2 599.9
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AFGL	1650 4181 1652 4182 1651 4183 1653 1656 1656	49235 1660 1661 1663 4185 5290 1669 4186 5291	4187 4188 4189 1676 4190 5292 1677 1680 1684	1685 1687 1688 1689 1690 4191 1694 1694	1698 1697 4193 1700 5293 4195 1706 5294 5295
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m(27) Sp	6. 1. 6. M.	GG	2. 6. 8. M. A. A. M.	.2. M M M M M M M M M M M M M M M M M M	2.6 .3 M4 33.9 .3 M8
m(27)	26666666666	4. 1. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4.	6 . 4 M2 2 . 5 K2 M2 4 . 2 . 6 M4 M3 1 . 4 M9	4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.	3 . 5 M M M M M M M M M M M M M M M M M M
- 1	15.9 .4 M8 12.1 C 16.1 6 M4 14.1 .4 .1 .4 .2 .2 .3 M3 17.6 .2 .2 .3 M3 M4	GO M4 H	13.2.5 13.2.5 13.7.4.6.2 11.2.2.6 MA 13.1.4.0.6 MA 13.1.4.0.6 MA MB MB MB MB MB MB MB MB MB MB	13.8 .4 .2 .8 .3 .4 .1 .1 .0 .2 .8 .3 .4 .4 .5 .1 .6 .1 .0 .2 .8 .3 .4 .5	-2.3.5 M M1 M3 -2.0.2 -2.6.3 M4 -4.5.2 -3.9.3 M8 -2.2.2.2.3.3 M8
m(27)	9. 9. 4. 1. 6. M6. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9.	3.2 .4 -6.7 .7 M4 1.7 .2 -3.0 .3 M7 3.4 .5 -2.6 .3 K3	3.2 .5 3.2 .5 3.2 .5 3.2 .5 1.4 .2 .6 1.2 .2 M4 1.2 .2 M4 3.1 .4 M9	3.8 .4 .2 .2 .8 .3 .72 .2 .4 .5 .7 .5 .7 .8 .8 .8 .8 .8 .7 .2 .7 .2 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8	2.3.5 M3 2.0.2 -2.6.3 M4 3.6.4 -3.9.3 M8 2.2.2.2 -3.9.3 M8
) m(11) m(20) m(27)	.2 -5.4 .3 -5.9 .4 M8 .3 -1.3 C -1.6 .2 M6 .3 -2.2 .4 -2.9 .4 M6 .3 -2.2 .4 -2.9 .4 M6 .3 -3 .4 -2.6 .5 M8 .3 -3 .4 -2.6 .5 M8 .3 -2 .2 .1 6 .2 -2.8 .3 M8	3 1.2 C M4 .3 -5 C M4 .3 -9.4 -3.2 .4 -6.7 .7 M4 -2.1 .5 -3.2 .4 -6.7 .7 M4 -1.4 .4 -3.4 .5 -3.6 .3 M7 .3 -1.0 .4 K3	-2.9 .4 -4.0 .4 M3	.3 .3 .3 .3 .3 .2 .2.7 .4 .3.8 .4 M5 .3 .3 .3 .3 .2 .2.8 .3 K2 .3 .3 .3 .3 .3 .2 .2 .8 .3 K2 .3 .1 .4 .5 M6	.3 -3.5 .5 M5 M3 M3 M3 M3 M3 M3 M4 M3 M3 M4
(11) m(20) m(27)	C-3.9 .2 -5.4 .3 -5.9 .4 M8 -1.7 C -2.0 .4 -2.1 C -6.1 .6 M4 -1.1 .3 -1.3 C -1.6 .2 M6 .3 .3 -2.2 .4 -2.9 .4 .4 .3 -2.2 .4 -2.9 .4 .4 .3 -3 .4 -2.6 .5 -1 .3 -6 .2 -1.6 .2 -2.8 .3 M3 1.0 .3 .2 .2 .2 .4 .3 -2.2 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4	1.2 .3 1.2 C .8 .3 .5 C .9 .39 .4 .5 .3 .2 .4 .6.7 .7	6 .3 -1.3 .4 -4.0 .4 M2 -1.0 .5 -1.3 .4 -3.2 .5 M2 -1.3 .4 -1.2 .2 .6 M4 -1.4 .2 M4 -1.4 .2 M4 -1.2	1.0 .3 .6 .3 .6 .3 .1.2 .3 .1.2 .3 .1.3 .3 .2 .4 .8 .4 .8 .4 .8 .5 .5 .5 .5 .4 .5 .8 .3 .8 .4 .8 .8 .4 .8 .8 .8 .8 .8 .8 .3 .3 .2 .2 .2 .8 .3 .7 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8	-1.8 .4 -1.3 .5 M1 -1.6 .4 -2.0 .2 -2.6 .3 M4 -3.5 .3 -4.5 .2 -3.9 .3 M8 -2.4 .2 -2.2 .3 .3 M8
Ref m(4) m(11) m(20) m(27)	SAD <-3.9 .2 -5.4 .3 -5.9 .4 M8 SAD -1.7 C -2.0 .4 -2.1 C -6.1 .6 M4 SAD -1.3 -1.3 C -1.6 .2 M6 AGL 3 3 -2.0 .4 -4.1 .4 -6.4 .6 K5 AGL 3 3 -2.2 .4 -2.9 .4 M6 SAD -1 .3 -3 .4 -2.6 .5 M3 SAD -3 .2 -6 .2 -1.6 .2 -2.8 .3 M3 SAD 1.0 .3 .2 .2 .2 M4	SAD 1.2 .3 1.2 C M45 SAD 1.1 .3	AGL AGL AGL AGL AGL AGL SAO6 .3 .4 -4.0 .4 M2 SAO8 .5 -3.6 .4 M2 K2 AGL FIR SAO8 .5 -3.7 .4 -6.2 .6 M4 SAO9 .2 -1.2 .2 M4 SAO9 .2 -1.2 .2 M4 M3 CIO 2.0 C -1.5 .3 -3.1 .4 M9	SAD 1.0.3 SAD 1.2.3 SAD 1.2.3 SAD 1.2.3 SAD 1.1.3 SAD 1.1.3 SAD 1.1.3 -3.3.2 -2.8 .3 K2 K3L IRC .2.2 -5.4 -2.4.5 M6 CIO .3.3 -1.1.2 -1.0.2 M6	.7 .3 8 .42 .3 .5 M1 8 .4 8 M1 M3 8 8 M4 M3 8 8 M4 8 8 8 M4 8 8 8 8 M4 8
50) Ref m(4) m(11) m(20) m(27)	7 SAD <-3.9 .2 -5.4 .3 -5.9 .4 M8 7 SAD -1.7 C -2.0 .4 -2.1 C -6.1 .6 M4 27 SAD -1.1 .3 -1.3 C -1.6 .2 M6 30 AGL -2.0 .4 -4.1 .4 -6.4 .6 K5 48 AGL -2.2 .4 -2.9 .4 46 SAD -1.1 .3 -2.2 .4 -2.9 .4 46 SAD -1.1 .3 -2.2 .4 -2.9 .4 6 SAD -1.1 .3 -2 .2 -1.6 .2 -2.8 .3 M3 6 SAD 1.0 .3 .2 .2 .7 .8 .7 .8 M4	51 SAO 1.2.3 1.2 C M44 11 SAO 1.1.3 -5 C M44 11 SAO 1.1.3 -9.4 -6.7.7 7 30 AGL -2.1.5 -3.2.4 -6.7.7 0 52 FIR -1.3.3 .3 C -1.8.2 M7 6 48 AGL -1.4.4 -3.4.5 -2.6.3 1 21 SAO 1.2.3 -1.0.4 K3	25 SAC	1 SAO 1.0 .3 57 SAO 1.2 .3 34 SAO 1.2 .3 35 SAO 1.1 .3 5 SAO -1.1 .0 5 SAO -3.1 .3 -3.3 .2 -2.8 .3 K2 46 K3L 42 IRC .2 .2 -5.4 -2.4 .5 M6 M6 M7 M8 M8 M9 M9 M9 M9 M9 M9 M9 M9 M9 M9	7 SAD .7 .3 -8 .4 -2.3 .5 M5 41 SAD 1.4 .4 -1.6 .4 M1 4.4 SAD 0 AGL -1.9 .4 -2.0 .2 -2.6 .3 M1 5.4 AGL -2.3 .3 -3.5 .3 -4.5 .2 -3.9 .3 M8 5.2 SPC 5.2 SPC 5.2 SPC 5.3
50) Ref m(4) m(11) m(20) m(27)	8 7 7 SAO <-3.9 .2 -5.4 .3 -5.9 .4 M8 4 12 7 SAO -1.7 C -2.0 .4 -2.1 C -6.1 .6 M4 9 47 27 SAO -1.7 C -2.0 .4 -2.1 C -6.1 .6 M6 12 130 AGL -2.0 .4 -4.1 .4 -6.4 .6 K5 3 14 AGL -2.2 .4 -2.9 .4 M6 3 25 46 SAO -1.3 -3.3 .4 -2.6 .5 M8 41 28 SAO -1.3 -3 .4 -2.6 .5 M8 41 28 SAO -1.3 -6.2 -1.6 .2 -2.8 .3 M8 22 4 6 SAO 1.0 .3 .2 .2 2 116 .2 -2.8 .3 M8 41 28 SAO -1.3 -2.6 .5 M8 41 28 SAO -1.3 -2.2 -1.6 .2 -2.8 .3 M8 41 28 SAO -1.0 .3 .2 .2 -1.6 .2 -2.8 .3 M8 41 28 SAO -1.0 .3 .2 .2 .2 .4 .5 .4 .5 .4 .5 .4 .5 .4 .4 .5	8 38 51 SAO 1.2 .3 1.2 C	5 33 25 SAO 2 7 0 AGL 2 7 0 AGL 2 7 0 AGL 2 7 0 AGL 3 5 6 33 SAO 1 12 30 AGL 5 19 4 -4.0 .4 1 12 30 AGL 6 19 5 -3.5 .5 1 2 30 SAC 7 6 6 38 .5 -3.7 .4 -6.2 .6 1 3 5 30 SAC 7 6 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	M6 57 SAO 1.0.3 7 46 57 SAO 1.2.3 8 37 34 SAO 1.2.3 9 40 1 SAO 1.2.3 9 26 55 SAO 1.1.1 9 26 55 SAO -1.1 9 26 55 SAO -3.1 3 -3.3 3 -3.3 2 46 50 6 12 42 IRC 1 2 8 .2 7 1 28 CIO 3 3 3 -1.1 2 -1.0 2 M6	112 7 SAD 7 . 3
Dec(1950) Ref m(4) m(11) m(20) m(27)	2 -29 7 7 SAU <-3.9 .2 -5.4 .3 -5.9 .4 M8 4 -34 12 7 SAU -1.7 C -2.0 .4 -2.1 C -6.1 .6 M4 5 +39 47 27 SAU -1.7 C -2.0 .4 -2.1 C -6.1 .6 M6 0 -61 21 30 AGL -2.0 .4 -4.1 .4 -6.4 .6 K5 9 -65 31 48 AGL -2.2 .4 -2.9 .4 M6 2 +34 41 28 SAU -1 .3 -3 .4 -2.6 .5 2 +64 58 11 SAU -1 .3 -3 .4 -2.6 .5 5 +52 34 6 SAU 1.0 .3 .2 .2 -1.6 .2 -2.8 .3 M9	2 +18 38 51 SAO 1.2 .3 1.2 C	33 25 SAC	9 -28 39 1 SAO 1.0 .3	12 7 SAO . 7 . 3
50) Dec(1950) Ref m(4) m(11) m(20) m(27)	12.2 -29 7 7 5AD <-3.9 .2 -5.4 .3 -5.9 .4 M8 32.4 -34 12 7 5AD -1.7 C -2.0 .4 -2.1 C -6.1 .6 M4 48.5 +39 47 27 5AD -1.1 3 -1.3 C -1.6 .2 M6 3.0 -61 21 30 AGL -2.0 .4 -4.1 .4 -6.4 .6 6 3.0 -65 31 AGL -2.2 .4 -2.9 .4 M6 15.9 - 5 34 41 28 5AD -1.3 -3 .4 -2.6 .5 M3 55.2 +64 58 11 5AD -1.3 -3 .2 -1.6 .2 -2.8 .3 M3 27.5 +52 34 6 5AD 1.0 .3 .2 .2 .4 M4	18.2 +18 38 51 SAD 1.2 .3 1.2 C 29.9 -26 11 13 SAD .8 .3 .5 C 17.2 +27 44 11 SAD .11 .3 .5 C 51.0 -30 49 30 IRC .9 .39 .4 .8 .3 .5 C 29.0 -61 7 30 AGL .2 .1 .5 -3.2 .4 -6.7 .7 20.0 +4 20 52 FIR .3 .3 .3 C -1.8 .2 .3 0 .3 M7 46.0 -59 30 48 AGL .13 .3 .3 C -38 .2 M7 31.8 -27 11 21 SAD 1.2 .3 -1.0 .4 S K3	23.3 -76 33 25 SAC	40.9 -28 39 1 5AD 1.0 .3 .5 +77 46 57 5AD 1.2 .3 13.5 -10 2 31 5AD .6 .3 27.2 -13 37 34 5AD 1.2 .3 77.8 +69 40 1 5AD 1.1 .3 56.9 -59 459 40 5AD -3.1 .3 -3.3 .2 -2.8 .3 K2 57.0 -13 52 46 45L .2 .3 .3 .3 -3.3 .2 -2.8 .3 K2 15.0 -16 12 42 IRC .2 .2 -5 .4 -2.4 .5 M6 14.2 +67 1 28 CIO .3 .3 -1.1 .2 -1.0 .2 M6	29.0 -13 12 7 SAO .7.3 -2.3.5 M5 31.5 -14 10 41 SAO 1.4 .4 -1.6 .4 42.3 -36 37 44 SAO 1.4 .4 -1.6 .4 49.0 + 3 1 0 AGL -9.4 -2.0 .2 -2.6 .3 53.0 +13 55 1 SAO .4 .3 -3.6 .4 -3.6 .4 57.0 -60 10 54 AGL -3.3 -3.5 .3 -4.5 .2 -3.9 .3 M8 46.5 +35 6 13 SPC -2.3 .3 -3.5 .3 -4.5 .2 -3.9 .3 M8 53.7 +35 27 52 SPC
Dec(1950) Ref m(4) m(11) m(20) m(27)	2.2 -28 7 7 SAO <-3.9 .2 -5.4 .3 -5.9 .4 M8 2.4 -34 12 7 SAO -1.7 C -2.0 .4 -2.1 C -6.1 .6 M4 8.5 +39 47 27 SAO -1.7 C -2.0 .4 -2.1 C -6.1 .6 M6 3.0 -61 21 30 AGL -2.0 .4 -4.1 .4 -6.4 .6 K5 6.0 -65 31 48 AGL -2.2 .4 -2.9 .4 M6 5.9 - 3 25 46 SAO -4 .3 -3 .4 -2.6 .5 M8 8.2 +64 58 11 SAO -1 .3 -6 .2 -1.6 .2 -2.8 .3 M8 7.5 +52 34 6 SAO 1.0 .3 .2 .2 .4 M4	8.2 +18 38 51 SAD 1.2 .3 1.2 C 9.9 -26 11 13 SAD .8 .3 .5 C 7.2 +27 44 11 SAD .11 .3 .9 .4 .8 .4 .3 .4 .5 C 1.0 -30 49 30 IRC .9 .39 .4 .8 .4 .3 .4 .8 .4 .3 .4 .5 .4 .6 .7 .7 .7 .4 .9 .5 .4 .5 .4 .5 .4 .5 .4 .5 .4 .5 .4 .6 .7 .7 .7 .4 .8 .4 .4 .4 .3 .4 .5 .4 .5 .4 .5 .4 .8 .4 .8 .4 .4 .4 .4 .4 .4 .4 .3 .4 .5 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8	3.3 -76 33 25 SAO	0.9 -28 39 1 SAD 1.0 .3 3.5 -10 2 31 SAD .6 .3 7.2 -13 37 34 SAD 1.2 .3 7.2 -13 37 34 SAD 1.2 .3 7.8 +69 40 1 SAD 1.1 .3 6.9 -59 40 5 SAD -1.1 .2 .3 7.9 +69 26 31 SAD -3.1 .3 -3.3 .2 -2.8 .3 K2 7.0 -13 52 46 45L .2 .2 .3 .3 -3.3 .2 -2.8 .3 K2 7.0 -16 12 42 IRC .2 .2 -5 .4 -2.4 .5 M6 7.0 -16 12 42 IRC .3 .3 -1.1 .2 -1.0 .2 M6	9.0 -13 12 7 SAD .7.3 -2.3.5 M5 2.3 -36 37 44 SAD 1.4 .4 -1.6 .4 M1 2.0 +3 1 0 AGL -9.4 -2.0 .2 -2.6 .3 M3 3.0 +13 5 51 SAD .4 .3 -3.5 .3 -4.5 .2 -3.9 .3 M8 7.0 -60 10 54 AGL -3.3 -3.5 .3 -4.5 .2 -3.9 .3 M8 6.5 +35 6 13 SPC -2.3 .3 -3.5 .3 -4.5 .2 -3.9 .3 M8 3.7 +35 27 52 SPC

Table Of Observations

۵	58.0 68.7 -7.8 48.6 66.9 40.0 66.4 66.4 66.5	65.7 65.7 65.7 65.1 65.1 64.8 60.8	20021 20021 20044	52.1.2.2.1.1.2.2.1.1.2.2.1.2.2.2.2.2.2.2	35 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
-	352.7 43.0 3411.6 341.1 67.0 115.4 69.0 327.3 38.1	8 3 4 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	327.7 3322.7 316.5 117.2 117.2 312.0 318.3 324.8 324.8	23.1.2 3.18.8 3.19.8 3.6.5 3.6.5 3.6.2 3.6.2 3.6.2 3.7.2	320.2 320.2 320.7 325.6 325.6 322.2 3322.2 3352.2
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Ä	5410 5430 5429	5459 5490 5506 5512	5514 5526 5563 5563	5584 5600 5602 5603	5622 5654 5654
TMSS	243 -10306 80028 40257 -30222 30259	30261 30262 60229 30263 60230 30264 20275	-30211E -30226 70125 -10308	256 -30214E 30266 40263 -30228	-20279 20277 262 -10317
AFGL	1710 5296 4196 1711 1713 1714 49475 1716	4197 1719 1720 4198 1724 4199 4200 1726 1726	1732 1732 1736 1736 1740 1743 1743 1743	1745 4206 4206 4207 5299 5209 5300 1748	4209 4979S 4210 4211 1754 4212 1756 1761
стуре	G G IIII IIII EE III EE III	GG V GIIIA GIII IIII	0 1111	IIAB IIAB III	111 111AB G
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0) Ref m(4) m(11) m(20) m(27)	6 EIC .4 .3 -1.3 .4 -1.9 W -2.2 .2 -2.4 .3	5 SAO -2.0 C -2.7 .4 -2.1 .8 M5 7 SAO 0.0 .3 -1.4 .2 -2.5 .2 M6 6 SAO .8 .3 -1.7 .2 -1.2 .2 M6 2 SAO .1 .36 .2 -7 .2 -1.2 .2 M6 2 SAO .1 .36 .2 -7 .2 M6 3 SAO 1.5 .3 .4 -4.3 .4 -7.8 .6 3 SAO 1.5 .3 .7 C M3 3 SAO -2 .3 -1.5 .3 -1.4 C M6	5 SAO7 .3 0 AGL5 .3 -3.0 .4 -3.6 .5	6 IRC 1.3 .3 M56 O AGL 2.5 .5 M66 O AGL 2.5 .5 SPC -1.3 .2 -3.6 .2 SPC -3.0 .2 -2.4 .2 SPC -1.3 .5 -3.9 .5 -3.9 .5 SPC -3.2 .2 .2 AGL -3.2 .2 SPC -3.2 .2 AGL -3.2 .3 AGL -3.2 AG	6 AGL -2.4 .4 -4.3 .4 K5 4 AGL -3.9 .4 K5 -3.9 .4 AGL -3.9 .5 -4.2 .6 M4 AGL -2.0 .4 -3.9 .4 M7 B AGL -2.0 .4 -3.9 .4 M7 S AGL -2.0 .4 -4.3 .4 -6.1 .6 M4 S SAO .7 .3 .5 C M4 -4.3 .4 -6.1 .6 M4 S SAO .7 .3 .5 C K5
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1950) Dec(1950) Ref m(4) m(11) m(20) m(27)	45.7 + 4 54 6 EIC .4 .3 -1.3 .4 -1.9 W 4.0 2 +28 59 54 FIR .2.2 .2 .2 .2 .2 .2 .4 .3 .3 .3 .2 -6 40 37 5A0 1.3 .3 .3 .3 .0 +38 9 36 ACL 1.3 .3 .3 .3 .2 -7 .4 .5 5 6 5A0 .7 .3 .33 .2 .1.0 .2 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	11.3 -60 37 49 SAO -2.0 C -2.7 .4 -2.1 .8 M5 9.3 +32 45 15 SAO4 .3 -1.4 .2 -2.5 .2 M5 6.2 +31 47 7 SAO 0.0 .37 .2 -1.2 .2 M5 13.5 +26 44 22 SAO1 .36 .27 .2 -1.2 .2 M5 13.5 +26 44 22 SAO1 .36 .27 .2 M5 13.0 -59 13 AQ L -1 .3 .4 -6.3 .4 -7.8 .6 M5 13.0 -59 10 3 SAO 1.5 .3 .7 C M5 14.1 +27 17 3 SAO2 .3 -1.5 .3 -1.4 C M5	31.4 -36 25 35 SAO7 .3 20.7 -27 45 12 SAO .6 .3 -3.0 .4 -3.6 .5 1.3 +80 38 31 SPC 44.0 -58 48 36 ACL 2.6 -12 14 15 SAO .9 .3 -1.2 .3 15.0 -54 6 18 AGL 3.3 C7 C -3.8 .4 M54.0 -58 46 7 52 SAO -1.4 .2 -1.5 .2 -1.5 .2 M65.0 -58 46 7 52 SAO -1.4 .2 -1.5 .2 -1.5 .2 M67.0 -38 6 18 AGL 8.3 C7 C -3.8 .4 M67.0 -38 6 18 AGL 8.3 C7 C -	53.2 + 4 45 59 SAD 1.3 .3	33.0 -57 19 6 AGL -2.4 .4 -4.3 .4 K5 22.0 -57 31 54 AGL -3.9 .5 -3.9 .4 18.0 -48 8 48 AGL -3.9 .5 -4.2 .6 47.7 +19 9 47 AGL -2.0 .4 -3.9 .4 48.0 -55 11 24 AGL -2.0 .4 -3.9 .4 21.9 - 2 13 .6 SAO .6 .3 1.0 C 22.0 -58 1 48 AGL -2.0 .4 -4.3 .4 -6.1 .6 39.9 - 8 57 55 SAO .7 .3 .5 C M4 37.5 -36 4 53 SAO .2 .3
950) Dec(1950) Ref m(4) m(11) m(20) m(27)	5.7 + 4 54 6 EIC .4 .3 -1.3 .4 -1.9 W 40.02 +28 59 54 FIR .4 -1.3 .4 -1.9 W 7.0 -68 59 54 FIR .3 .3 -3.7 .4 -3.7 .4 .3 .3 .0 +38 9 36 AGL 1.3 .3 .3 -3.2 -1.0 .2 .8 .8 .4 .2 +35 55 6 5A3 .7 .3 3 -3.3 -1.3 .2 -1.0 .2 .8 .8 .1 .7 -29 52 34 5A9 .4 .3 .3 .3 .3 .3 .3 .5 .3 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	1.3 -60 37 49 SAO -2.0 C -2.7 .4 -2.1 .8 M5 9.3 +32 45 15 SAO4 .3 -1.4 .2 -2.5 .2 M5 6.2 +31 47 7 SAO 0.0 .37 .2 -1.2 .2 M5 1.0 +55 0 56 SAO .8 .37 .2 -1.2 .2 M6 3.5 +26 44 22 SAO1 .36 .27 .2 M3 2.0 -59 10 3 SAO 1.5 .3 .4 -6.3 .4 -7.8 .6 M5 3.6 +56 19 3 SAO 1.5 .3 .7 C M3 8.1 +27 17 3 SAO2 .3 .7 C M5 4.5 +15 20 27 AO8 .3 -1.5 .3 -1.4 C M5	1.4 -36 25 35 SAO7 .3 2.0 -61 52 0 AGL 2.0 -61 52 0 AGL 3.3 -3.0 .4 -3.6 .5 3.4 80 38 31 SPC 3.4 80 38 31 SPC 4.0 -58 48 36 AGL 2.6 -12 14 15 SAO -1.5 .3 -1.2 .3 5.0 -54 6 18 AGL 3.3 C7 C -3.8 .4 M5 M6 M7 M8 M8 M8 M8 M8 M8 M8 M8 M8	3.2 + 4 45 59 SAQ 1.3 .3 4.0 -34 16 36 IRC 1.3 .3 -1.9 .4 -2.5 .5 89 SAQ 1.3 .3 4.0 -59 27 0 AGL 2.0 -58 25 42 AGL -1.3 .2 -3.6 .2 6.2 4.2 8.0 -58 50 12 AGL -1.3 .2 -3.6 .2 6.2 6.0 -58 50 12 AGL -1.3 .5 -3.9 .5 7.4 0 35 13 SAQ 1.1 .3 -2.1 .3 -2.8 .5 80.3 6.0 6.0 88.2 -2.5 5 12 SAQ -1.5 .2 -2.1 .3 -2.8 .5 80.3 80.3 80.3 6.0 6.0 80.3 6.0 6.0 80.3 6.0 6.0 80.3 6.0 6.0 80.3	3.0 -57 19 6 AGL -2.4 .4 -4.3 .4 K5 2.0 -57 31 54 AGL -3.9 .5 -3.9 .4 8.0 -48 8 48 AGL 2.3 -2.0 .4 -3.9 .4 7.7 +19 9 9 47 SAO 2.3 -2.0 .4 -3.9 .4 1.9 - 2 13 .6 SAO 6.3 1.0 C 2.0 -58 1 48 AGL 2.0 .4 -4.3 .4 -6.1 .6 9.9 - 8 57 55 SAO 7.3 .5 C AG 4.3 .4 -6.1 .6 7.5 -36 4 53 SAO .2 .3 .5 C K5

Table Of Observations

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Names	GC 20653 S SER S CRB RS LIB DO 3724	SVS 2332 TAU1 SER WX SER GG LIB WW SER S UMI	THE UMI UPS LIB TAU4 SER SVS 2390 DO 15290 KAP LIB RR CRB	ALF SER Y CRB Y CRB KAP SER V CRB R SER RHO SER	ST HER SVS 7235 THE LIB GP LIB DO 15359
£		5739	5826 5794 5838	5854 5830 5890 5890 5890	5908 5924
TMSS	-30234 10290 30272 -20286 265	-30220E 20280 20281 -20288 268 80030	80031 20282 20282 20283 -20292 40271	269 10294 40272 20295 20298 20298 20285 20285	50246 - 130246 - 10326 - 10326 - 10326 - 20288 - 274 - 20299
AFGL	1764 1765 5301 4990S 5302 5303 5304 5305 1767	1771 1772 1773 4215 4216 1776 1777 1780 5306	1783 1787 1788 4217 1790 5307 5308 1792 5309	1793 1794 1794 1796 1799 4219 5311 1803 5312	5313 1804 1805 1805 1805 1809 1811 5314 4220
Spec Type	MSE III MG.SE M7E III M7E III	M8.5 M1 IIIA M8.5E III M5 M7E III M7E III	K5 III M3 III M5 IIB M5 G K5 III M6 G	M6E III K2 IIIP M8 G M2 IIIAB M1 IIIAB F8 IA PEC C6,2E M6.5E	M6 IIIAS M5 K0 III M7 III M4 III M3 M4 III
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AFGL	1816 5315 1818 5317 5317 1822 1822 1823	1826 1826 1828 1832 1832 1837 5321 5321	5323 1838 1841 1844 1844 1850 1852	1853 1854 1855 1855 1856 1856 1858 1858 1858	5325 1861 1862 4225 1863 1864 5326 5055S
Spec Type	K2 III M7 M8-9E III M6 G M4 M M5.5E III	M5 M4 IIIA K4 III M7E III M4 III K3 III	K0 111 M2 111A M2 111 B1 111 M6E 111 K0 111	M2 111AB M3 B2 V G8 111 M7E C7.3E	M2.5 III M9 M1.5 IAB M6 III K7 III M7E III
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£		919	6200	6227	6299	6337
TMSS	-20320 70136	-30254E -30266 60243 20303 -10344	-20322 -30268 -20324 -30269 -40287 50255	20306 -10347 -10347 -20333 -20334 60248	20307 -20336 -30271 -30272 -10352 -30274 -10355	-20341 10318 -20347 -30282 60249 10358
AFGL	5327 5056S 5328	4227 4228 1870 1872 1873 1874	1876 1879 1879 1880 1883 5330 1885 1886	1888 1889 1890 1893 1893 1898 1899 1904	1905 1908 1900 1900 1900 1901 1901 1900 1900	1920 5333 5334 1923 1927 1930 1932 1933
Spec Type	MSE M6 M5E	X6 N4,7 M4-5E K5 M6	M6 IIIAB C5.5 M7 M6 G GB III M6 G M5 III	M3 IIIAB M6 III M8 IIIAB M4.5E III M2.5 G M7	M5SE M7 M6E M7 M6 K2 III M3 G	M9 M3 III M5E M5 IA M7 IIA M5 IIIA
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(4) m(11) m(20)	.6 -17 3 28 SPC -1.5 .2 .0 -24 51 6 IRC 1.7 .4 .4 C .3 +66 51 29 CIO 1.9 C 0.4 C7 .	9 42 AGL 1.9 .3 9 16 SAO .9 .3 .3 4 10 SAO 1.1 .37 .4 -1.0 . 2 39 SAO .7 .3 1 15 SAO <1.1 .37 .3	.0 .3	+15 50 11 5A0 .8 .31 .2 -11 33 6 1RC .2 .39 .2 +42 19 37 5A0 0.0 .34 .2 -36 11 18 AGL .2 .3 -19 23 29 C10 1.3 .32 .2 +51 55 9 5A0 0.0 .39 .2 +63 2 6 AGL 10 .4 -12 52 6 1RC 11 .3 -1.9 .2 -1.8 .2	.5 .30 .2 -1.8 .2 .6 .3 -1.4 .4 -2.5 .6 .2 .3 .1 .4 .4 -2.5 .5 .4 .3 .3 .3 -1.0 .2 -2.3 .2 -2.3 .2 -2.5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4	.4 .3 -1.2 .2 -1.9 .2 .4 .3 .1 .2 .2 .2 .1 .2 .2 .3 .2 .3 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3

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£				6406	6418		6452		6495	6498			
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m(27) Spe	-2.2 .3	-3.4 .3 M9	M8 M8 M8	M7E .4 .2 -4.3 .3 M5 I M8 I M8 G		M5 I	-	∢ ຕັ	.5 .2 M4	. 1.4	8.44 8.46 8.60 8.60		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
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m(20) m(27) Spe	2 -2.9 .2 -2.2 .3 -2.9 .4 -3.4 .4	-2.6.2 -3.4.3 M9	MB MB 29.2 -2.7.3	M7E -4.4 .2 -4.3 .3 M5 I M8 I M8 G	12.1.2 1.4.2 12.1 3 M6 M8 M8	2 -3.0 .4 M7 I	-	MIS C7,3	M76 .2 -4.5 .2 M4	. 8 . 2 - 3. 4 . 2 - 4.1 . 3 M2	4 .2 -2.9 .2 -4.5 .3 6 .2 -3.1 .2 -4.2 .3 7 .2 -3.0 .3	22 - 1.9 22 - 1.9 24 - 1.9 25	
(11) m(20) m(27) Spe	-1.7 .2 -2.9 .2 -2.2 .3 -2.9 .4 -1.7 .4 -3.4 .4	2.4 .2 -2.6 .2 -3.4 .3 M9	3 .3.2 M8 30.29.2 -2.7.3	1.3 .2 4.4 .2 -4.3 .3 M5 I M5 I M8 I M8 I M8 I M8 I M8 I M8 I	.4 .2 .1 .3 M6 .0 .2 .2 .1 .3 M65 .2 M8 M8	.8 .2 -3.0 .4 M7 .4 .2 .2 .2 -1.3 .2 M5 I	3 .0 .2 M7	.4 .4 M5 .2 .2 .2 .2 M6	M76 .2 -4.5 .2 M4	1.8 .2 -3.4 .2 -4.1 .3 M2 -1.1 .2 M2 -1.1 .2 K2 .1 .2 K2 .1 .2 K2 .1 .2 K4	4 .2 .2.9 .2 .4.5 .3 6 .2 .3.1 .2 .4.2 .3 1.7 .2 .3.0 .3		
(11) m(20) m(27) Spe	2 .3 -1.7 .2 -2.9 .2 -2.2 .3 1 .3 1.7 .4 -3.4 .4	.2 .3 -2.4 .2 -2.6 .2 -3.4 .3 M9	1.3 .3.2 M8 6.30.29.2 -2.7.3	3 -4.0 .2 -4.4 .2 -4.3 .3 M5 I 3 .3 .2 .2 .4 .2 .4 .5 .8 M8 I 3 .5 .2 M5 G	-2.1.2 -1.4.2 -2.1.3 M6 30.2 M0 5.2 M8	38 .2 -3.0 .4 M7 34 .2 -1.3 .2 M5 I	5.3 3.3 .0 .2 M7	34 .4 M5 35 .2 M6 M6	36 .2 -4.5 .2 M4	3 -1.8 .2 -3.4 .2 -4.1 .3 M2 -0 .2 .3 -1.1 .2 M2 .4.1 .3 M4.	4 .2 -2.9 .2 -4.5 .3 6 .2 -3.1 .2 -4.2 .3 2 -1.7 .2 -3.0 .3	2 -1.0 .2 -1.8 .2 3 -1.3 .2 -1.9 .2 -1.1 .2 -4.1 .2 -5.8 .3	3 - 1.2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -
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1950) Ref m(4) m(11) m(20) m(27) Spe	31 6 IRC2.3 -1.7.2 -2.9.2 -2.2.3 32 6 AGL -2.1.3 22 44 CIO .8.3 -1.7.4 -3.4.4	8 24 AGL .2 .3 59 25 EIC2 .3 -2.4 .2 -2.6 .2 -3.4 .3 M9 55 11 CAD 1 2 3	29 11 34 0 1.2 3 .3 .2 M8 44 12 IRC 1.1 .3 .3 .2 M8 28 51 SAD .6 .30 .29 .2 -2.7 .3 MB 48 SPC	7 32 SAO .2 .3 -1.3 .2 A.4 .2 -4.3 .3 M5 I 23 0 IRC 1.2 .3 .3 .2 A.4 .2 -4.3 .3 M5 I 25 27 SAO 1.0 .3 .5 .2 M5 G	56 50 SPC -2.1 .2 -2.1 .3 M6 51 82 83 8 SPC -3 .3 .4 .2 -1.4 .2 -2.1 .3 M6 10 10 SAD 1.4 .3 -0 .2 M8 56 24 IRC 1.7 .4 -11 .2 M8	34 40 LKR 1.6 .38 .2 -3.0 .4 M7 11 21 SAO4 .34 .2 SO 36 SPC2 .2 -1.3 .2	6 26 SAO . 5 . 3 . 0 . 2 M1 I	45 45 580 1.1 .3 7.4 .4 M5 16 54 18C 1.1 .3 7.4 .4 C7,3 20 30 18C 1.7 .4 7.5 .2 M6 48 24 18C 1.3 .3 7.2 .2 M6	1 12 IRC 1.2 .3 -6 .2 -4.5 .2 M7 6 35 SPC 57 35 SAO .2 .3 -0 .2 M4	1; 59 SPC -1.8 .2 -3.4 .2 -4.1 .3 2 58 SAO 1.2 .30 .2 M2 10 56 SAO .7 .31 .2 K2 54 49 SAO .7 .3 .1 .2 M4.	21 12 SPC4 .2 -2.9 .2 -4.5 .3 33 35 SPC6 .2 -3.1 .2 -4.2 .3 25 28 EIC6 .2 -1.7 .2 -3.0 .3	22 3 SPC 3 .2 -1.0 .2 9 .2 25 42 IRC .9 .3 -1.1 .2 -1.9 .2 -1.9 .2 39 39 SPC 1.1 .2 -4.1 .2 -5.8 .3	43 6 IRC 1.2 .32 .2 -3.7 .2 -5.1 .3 50 3 SPC -1.0 .2 -3.2 .2 -5.0 .3 44 29 SPC -1.3 .2 -1.0 .2 -2.3 .3 30 54 SPC -2.3 .3 -2.0 .2 -3.4 .3 43 9 SPC -3.4 .3 -3.1 .2 -4.1 .3
Dec(1950) Ref m(4) m(11) m(20) m(27) Spe	-10 31 6 IRC2 .3 -1.7 .2 -2.9 .2 -2.2 .3 -75 32 6 AGL -2.1 .3 -1.7 .4 -3.4 .4	+14 8 24 AGL .2.3 + 8 59 25 EIC2.3 -2.4.2 -2.6.2 -3.4.3 M9 + 7 55 13 500 10 3	-0 44 12 1RC 1.11.3 .3.2 M8 -30 28 51 SAD .6.30.29.2 -2.7.3 M8	+11 7 32 SAO .2 .3 -1.3 .2 -4.4 .2 -4.3 .3 M5 I +14 26 45 SAO <-3.7 .3 -4.0 .2 -4.4 .2 -4.3 .3 M5 I -21 23 0 IRC 1.2 .3 .3 .2 M8 +36 25 27 SAO 1.0 .3 .5 .2 M5 G	-10 56 50 SPC -2.1 .2 -2.1 .3 M6 -18 28 34 SPC -3 .34 .2 -1.4 .2 -2.1 .3 M6 -15 10 10 SAD 1.4 .30 .2 M8 -17 39 44 SPC -5.5 .2 M8 -11 56 24 IRC 1.7 .4 -11 .2 M8	-19 34 40 LKR 1.6 .38 .2 -3.0 .4 M7 + 2 11 21 SAO4 .34 .2 M5 I M5 I -19 50 36 SPC2 .2 -1.3 .2	+18 6 26 SAO . 5 . 3 . 0 . 2 M1 I	+ 10 45 42 540 1.1 .34 .4 M5 M5 4.2 16 54 IRC 1.1 .32 .2 20 30 IRC 1.7 .45 .2 M6 48 24 IRC 1.3 .32 .2 M6	-3 1 12 IRC 1.2 .36 .2 -4.5 .2 M7 -34 6 35 SPC 1.2 .36 .2 -4.5 .2 M4	-34 1; 59 SPC -1.8 .2 -3.4 .2 -4.1 .3 -31 2 58 SAO 1.2 .30 .2 + 4 10 56 SAO .7 .31 .2 +71 54 49 SAO .7 .3 .1 .2	-34 21 12 SPC4 .2 -2.9 .2 -4.5 .3 -34 33 35 SPC6 .2 -3.1 .2 -4.2 .3 - 7 25 28 EIC6 .2 -1.7 .2 -3.0 .3	-23 22 3 SPC7 .2 -1.8 .2 -19 26 37 CIO3 .2 -1.0 .29 .2 -26 25 42 IRC .9 .3 -1.3 .2 -1.9 .2 -1.9 .2 -34 39 39 SPC -1.1 .2 -4.1 .2 -5.8 .3	-33 50 3 50 -3.7 2.3 -3.7 2.5 -3.7 2.5 -3.3 3.3 50 3 50 -3.2 3 -1.0 .2 -3.2 2 -5.0 .3 -1.9 44 29 5 70 -3.3 30 54 5 70 -3.3 30 54 5 70 -3.3 30 54 57 50
50) Dec(1950) Ref m(4) m(11) m(20) m(27) Spe	7.0 -10 31 6 IRC2 .3 -1.7 .2 -2.9 .2 -2.2 .3 9.0 -75 32 6 AGL 2.1 .3 8.0 - 0 3 36 AGL 2.1 .3 4.3 -33 22 44 CIO .8 .3 -1.7 .4 -3.4 .4	9.0 +14 8 24 AGL .2 .3 5.8 + 8 59 25 EIC2 .3 -2.4 .2 -2.6 .2 -3.4 .3 M9	.0 - 0 44 12 1RC 1.1 .3 .3 .2 M8 .1 -30 28 51 SAD .6 .30 .29 .2 -2.7 .3 M8 .3 -27 8 48 SPC 9 .29 .2 -2.7 .3	8.8 +11 7 32 SAO2 .3 -1.3 .2 A.0 .2 -4.4 .2 -4.3 .3 M5 I 1.9 +14 26 45 SAO <-3.7 .3 -4.0 .2 -4.4 .2 -4.3 .3 M5 I 6.0 -21 23 0 IRC 1.2 .3 .3 .2 M8 9.0 +36 25 27 SAO 1.0 .3 .5 .2 M5 G	2.3 -10 56 50 SPC -2.1 .2 7.0 -18 28 34 SPC -1.3 .3 M6 7.0 -18 28 14 SPC -3 .3 -4 .2 -1.4 .2 -2.1 .3 M6 7.3 -15 10 10 SAO 1.4 .3 -0 .2 M8 7.5 .1 39 44 SPC -5.5 .2 M8 7.5 .1 56 24 IRC 1.7 .4 -1 .2 M8	4.3 -19 34 40 LKR 1.6 .38 .2 -3.0 .4 M7 5.1 + 2 11 21 SAQ4 .34 .2 M5 I 8.2 -19 50 36 SPC2 .2 -1.3 .2	6.5 +18 6 26 SAO .5 .3 .0 .2 M1 I	9.5 + 10 45 45 340 1.1 .34 .4 M5 M5	8.0 - 3 1 12 IRC 1.2 .36 .2 -4.5 .2 M7 3.8 -34 6 35 SPC6 .2 -4.5 .2 M4	2.3 -34 1; 59 SPC -1.8 .2 -3.4 .2 -4.1 .3 2.3 -31 2 58 SAO 1.2 .30 .2 1.9 + 4 10 56 SAO .7 .31 .2 K2 3.4 +71 54 49 SAO .7 .3 .1 .2 M4.	.1 -34 21 12 SPC4 .2 -2.9 .2 -4.5 .3 .1 -34 33 35 SPC6 .2 -3.1 .2 -4.2 .3 .1 - 7 25 28 EIC6 .2 -1.7 .2 -3.0 .3	8.7 -23 22 3 SPC7 .2 -1.8 .2 4.8 -19 26 37 CIO3 .2 -1.0 .29 .2 3.0 -26 25 42 IRC .9 .3 -1.3 .2 -1.9 .2 6.5 -34 39 39 SPC -1.1 .2 -4.1 .2 -5.8 .3	9.0 -26 43 6 IRC 1.2 .3 -2 .2 .2 .3 .5 .9 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
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AFGL	1976 1977 1977 1979 5351 1981 1983 5354 5355	5356 1985 1987 1987 5359 1989 1988 5360	5364 5365 5365 5364 1993 1993 5366 5367 5368	5369 5370 5371 1995 5372 5373 5375 1996	5376 1997 1998 1998 1999 5378 2000 5379 5380
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AFGL	2002 2003 5382 2004 2004 2006 5383 5385 5385	5387 51395 2008 5388 5389 5390 4233 2009	2011 2012 5392 5393 51438 5394 2013 2015	51468 2016 5396 5397 2017 5398 5399 5400	2001 2001 2002 2002 2002 2002 2002 2006 2006
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4) m(11) m(20) m(27)	.0 .3 -2.7 .2 -4.1 .2 -7.3 . .1 .2 -3.9 .2 -7.0 .2 -8.0 . .1 .2 .2 -4.7 .2 -3.4 . .0 .3 -1.2 .2 -4.7 .2 -3.4 . .1 .3 -2.4 .2 -4.8 .2 -3.1 . .1 .3 .2 .2 .6 .2 -3.1 . .3 .2 .2 .6 .2 -3.7 .	.6.4 8.2 2.7.2 3.4 3 4.5 4.5 4.5 4.3 4.3 4.3 4.3 4.5 4.5 4.5 4.3 4.5 4.5 4.5 4.3 4.3 4.3 4.3 4.5 4.5 4.5 4.3 4.5 4.5 4.5 4.3 4.3 4.3 4.3 4.3 4.3 4.5 4.5 4.5 4.3 4.5 .	.3 .3 .1.0 .2 .4.4 .2 .5.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .	.4 .2 -2.2 .2 -3.9 .2 -4.4 .3 E	7. 2. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3.
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(1950) Ref m(4) m(11) m(20) m(27)	16 9 AGL 1.0 .3 -2.7 .2 -4.1 .2 -7.3 . 58 0 1RC .7 .3 -2.7 .2 -4.1 .2 -7.3 . 18 35 SPC -1.2 -3.1 .2 -3.4 . 18 35 SPC -1.2 -4.7 .2 -3.4 . 13 32 SPC -1.0 .3 -1.0 .2 -1.4 .2 . 3 52 SPC -1.0 .2 -1.4 .2 . 1 56 SPC -1.1 .3 -2.4 .2 -4.8 .2 -7.4 . 11 56 SPC -3 .2 -2.3 .2 -3.7 .	56 53 SPC	43 48 AGL -1.7 .2 -4.4 .2 -5.3 .3 7 30 IRC 1.3 .3 -1.0 .2 -4.4 .2 -5.7 .3 51 27 SPC -1.0 .2 -4.4 .2 -5.7 .3 4 58 AGL 8 .2 -2.8 .2 -3.9 .3 52 40 SPC 8 .2 -2.6 .2 -4.7 .3 52 40 IRC 1.2 .3 -2.1 .2 -4.7 .2 -5.6 .3 51 12 LRV 2.0 .3 -1.4 .2 -2.9 .2 -4.7 .3 42 53 SAO 9 .3 -1.5 .2 -2.9 .2 -4.7 .3 10 22 SPC 3 .2 .3 .3 .3 .3 .2 -3.4 .3	26 10 AGL	55 57 JCG 4 3 2.0 2 2.6 2 3 3 3 3 4 5
Dec(1950) Ref m(4) m(11) m(20) m(27)	29 16 9 AGL 1.0 .3 -2.7 .2 -4.1 .2 -7.3 . 28 58 0 1RC .7 .3 -2.7 .2 -4.1 .2 -7.3 . 29 18 35 SPC -1.2 -3.1 .2 -3.4 . 29 18 35 SPC -1.2 -4.7 .2 -3.4 . 34 13 32 SPC -1.0 .3 -1.0 .2 -1.4 .2 . 450 3 52 SPC -1.0 .2 -1.4 .2 . 28 31 SPC -1.0 .3 -2.4 .2 -4.8 .2 -7.4 . 22 19 49 SPC -3 .2 -2.3 .2 -3.7 .	+44 56 53 SPC	-28 43 48 AGL 1.3 .3 -1.7 .2 -4.4 .2 -5.3 .3 .4 +44 51 29 SPC 1.3 .3 -1.0 .2 -4.4 .2 -5.7 .3 +44 51 29 SPC 1.2 -8 .2 -3.9 .3 -2.8 59 42 IRC 1.2 .3 -2.1 .2 -4.7 .2 -5.6 .3 -2.7 51 12 LKV 2.0 .3 -1.4 .2 -2.9 .2 -4.7 .3 +45 42 53 SAO 99 .3 -1.5 .2 -2.9 .2 -4.7 .3 -2.7 10 22 SPC 1.3 -3 .3 -3 .3 -3 .3 -3 .3 -3 .4 .3 .3 -3.7 10 22 SPC 1.3 -3 .3 -	-28 26 10 AGL	-26 55 57 UCG4 .3 -2.0 .2 -2.6 .2 -3.3 .3 .3 .26 10 38 SPC2 .3 -6 .2 -1.4 .2 .5 .1 .3 .3 .3 .3 .44 1 SPC2 .3 -1.1 .2 -2.4 .2 -5.1 .3 .3 .3 .44 55 10 UCG 1.2 .3 -1.1 .2 -2.4 .2 -2.8 .3 .3 .44 55 10 SPC7 .3 -2.0 .2 -3.1 .2 -2.9 .3 .44 55 14 SPC7 .3 -2.0 .2 -3.1 .2 -2.5 .2 .4 .2 .2 .3 .3 .3 .4 55 50 SPC10 .2 -2.5 .2 .3 .3 .3 .3 .3 .4 55 15 3 SPC10 .2 -3.1 .2 .3 .3 .3 .3 .3 .4 55 10 SPC4 55 50 SPC10 .2 -3.1 .2 .3 .3 .3 .3 .3 .4 .4 55 50 SPC4 .4 55 50 SPC4 .4 55 50 SPC4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
950) Dec(1950) Ref m(4) m(11) m(20) m(27)	29 16 9 AGL 1.0 .3 -2.7 .2 -4.1 .2 -7.3 . 28 58 0 1RC .7 .3 -3.9 .2 -7.0 .2 -8.0 . 29 11 39 SPC -1 .2 -3.1 .2 -3.4 . 29 48 41 CIO 1.0 .3 -1.2 .2 -4.7 .2 34 13 32 SPC -1.0 .2 -1.4 .2 50 3 52 SPC -1.0 .2 -1.4 .2 28 32 20 SPC -2.4 .2 -2.5 .2 -3.1 . 28 32 20 SPC -3.3 .2 -2.6 .2 -3.7 . 29 19 69 SPC -3 3.2 -2.6 .2 -3.7 .	4 56 53 SPC	28 43 48 AGL 1.3 .3 -1.7 .2 -4.4 .2 -5.3 .3 27 51 27 SPC 1.3 .3 -1.0 .2 -4.4 .2 -5.7 .3 24 51 29 SPC -8 8 AGL -8 8 2 -2.8 .2 -3.9 .3 28 59 8 B C 1.2 .3 -2.1 .2 -2.8 .2 -4.0 .3 27 51 12 LKV 2.0 .3 -1.4 .2 -2.9 .2 -4.7 .3 45 42 53 SAC .9 .3 -1.5 .2 -2.9 .2 -4.7 .3 27 10 22 SPC -3.8 .3 -3.8 .3 2.3 .3 -3.4 .3 3	20 26 10 AGL	26 55 57 JCG 4 3 -2.0 2 -2.6 2 -3.3 3 2 3.4 7 SAD 2 3 6 2 -1.4 2 26 10 38 SPC 8 2 -3.5 2 -5.1 3 25 49 0 JCG 1.2 3 -1.1 2 -1.5 2 -2.8 3 26 12 33 SPC 7 3 -2.0 2 -3.1 2 26 12 35 SPC 7 2 -2.5 3 27 15 3 SPC1.0 2 -2.5 3 27 15 3 SPC1.0 2 -3.1 3 28 14 55 50 SPC1.0 2 -3.1 3 29 15 3 SPC1.0 2 -3.1 3 20 15 3 SPC1.0 2 -3.1 3 20 15 3 SPC1.0 2 -3.1 3 20 15 3 SPC1.0 2 -3.1 3
50) Dec(1950) Ref m(4) m(11) m(20) m(27)	3.4 -29 16 9 AGL 1.0 .3 -2.7 .2 -4.1 .2 -7.3 . 1.0 -28 58 0 1RC .7 .3 -2.7 .2 -7.0 .2 -8.0 . 4.3 -30 11 39 SPC 1.2 -3.1 .2 -3.4 . 3.6 -29 18 35 SPC 1.2 .2 -4.7 .2 .3.4 . 3.6 -28 48 41 CIO 1.0 .3 .1 .2 .4.7 .2 . 2.4 +50 3 52 SPC 1.0 .2 -1.4 .2 . 2.3 +50 3 52 SPC 1.0 .2 1.4 .2 . 3.3 -2.4 .2 1.5 6 SPC 3 .2 .2 .3 .2 .3 .1 . 3.4 -20 3 2 50 3 .2 .2 .3 .2 .3 .2 .3 .2 .3 .2 .3 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	0.0 +44 56 53 SPC	1.2 -28 43 48 AGL	6.5 -28 26 10 AGL 6.8 - 8 0 36 EIC 6.8 - 8 0 36 EIC 7.4 .2 -2.2 .2 -3.0 .2 8.4 -27 41 54 5PC 7.9 -28 0 50 CIO 7.9 -28 0 50 CIO 7.9 -36 24 12 SPC 7.9 -3 -3 -2 -3.0 .2 -3.0 .2 7.3 .3 .3 .3 .3 .4 7.9 .2 -3.0 .3 .4 7.9 .2 .3 .3 .4 7.9 .3 .4 7.9 .4 .4 .4 .4 7.9 .4 .4 .4 .4 7.9 .4 .4 .4 .4 7.9 .4 .4 .4 7.9 .4 .4 .4 7.9 .4 .4 .4 7.9 .4 .4 .4 7.9 .4 .4 .4 7.9 .4 .4 .4 7.9 .4 .4 .4 7.9 .4 .4 .4 7.9 .4 .4 .4 7.9 .4 .	6.6 - 2 34 7 5A0 - 2 .3 -2.0 .2 -2.6 .2 -3.3 .3 6.6 - 2 34 7 5A0 - 2 .3 -6 .2 -1.4 .2 8.0 -26 10 38 SPC - 2 .3 -6 .2 -1.4 .2 7 .3 -2.6 .2 -1.4 .2 7 .3 -2.5 .2 -5.1 .3 7.9 -25 49 0 UCG 1.2 .3 -1.1 .2 -1.5 .2 -2.8 .3 3.0 -25 13 35 PC - 3 .2 -3.1 .2 -2 .3 .3 .3 .4 +44 53 14 SPC - 7 .3 -2.0 .2 -3.1 .2 -3.1 .3 .3 .4 +44 55 50 SPC - 1.0 .2 -3.1 .2 -3.3 .3 .3 .4 +44 55 50 SPC - 1.0 .2 -3.1 .2 -3.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3

Table Of Observations

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£	8899	9	6695 6702 6705	8699 9	
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AFGL	5408 5409 5410 5411 5411 5413 5414 5026	5415 2028 2038 2033 2033 2034 2034	51598 2038 5419 5420 2041 2039 5421 5421 5421	2042 5424 5424 5424 5425 5426 5426 5428 5429	51768 2048 2050 2049 5430 2051 2052 2053
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1) m(20) m(27) \$	2 -2.4 .2 -2.5 .3 .2 -3.0 .2 -3.0 .2 -3.0 .2 -3.0 .2 -3.0 .2 -3.1 .2 -3.1 .3 .4 .5 .3 .4 .5 .3 .4 .5 .3 .4 .5 .3 .4 .5 .3 .4 .3 .5 .5 .3 .4 .3 .4 .5 .5 .3 .4 .3 .4 .5 .5 .3 .4 .3 .4 .5 .5 .3 .4 .3 .4 .5 .5 .5 .3 .4 .3 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	2 -2.5 .2 -3.5 .3 F5 .3 .2 -1.7 .2 -3.5 .3 F5 .3	2 -1.5 .2 -3.4 .3 K10 2 -4.5 .2 -3.4 .3 K11 2 -2.5 .2 -2.9 .3 K5 2 -2.6 .2 -2.9 .3 K5 2 -2.7 .2 -2.4 .3 M3 2 -1.7 .2 -1.8 .3 M8	XO 2 -2.4 .2 -3.6 .3 M2 -2 -1.7 C -4.2 .3 M2 -2 -2.5 .2 -7.0 .3 M2 -2 -5.5 .2 -7.0 .3 M2 -2 -1.4 .2 -3.9 .3 C -2 -1.4 .2 -3.9 .3 C	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
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m(11) m(20) m(27) \$	6 .2 -2.4 .2 -2.5 .3 -1.0 .2 -3.0 .2 -5.0 .3 -1.0 .2 -3.0 .2 -5.0 .3 -1.7 .2 -3.8 .2 -4.6 .3 -2.2 .2 .2 .3 .2 -4.6 .3 -2.2 .2 .3 .2 .3 .2 .3 .4 .8 .3 -2 .3 .2 .3 .3 .4 .8 .8 .8 .3 .3 .3 .4 .3 .4 .3 .3 .4 .4 .3 .4 .	-1.5 .2 -2.5 .2 -3.5 .3 -1.2 .2 -1.7 .2 M6 -1.8 .2 -1.4 .2 M6 -1.8 .2 -1.5 .2 M8 M8E -1.8 .2 -1.5 .2 M8 M8E -1.5 .2 M8 M8E -1.5 .2 M8 M8E	1.9.2 -1.2.1.5.2 -3.4.3 -1.9.2 -4.5.2 -1.1.2 -8 C -2.3.2 -2.9.3 -2.3.2 -2.7.2 -2.9.3 -1.8.2 -1.7.2 -2.4.3 M3 -1.8.2 -1.7.2 -2.4.3 M8	C 2 2 2 2 4 2 3.6 3 M2 1.7 2 1.7 C 1	1.3. 2
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Table Of Observations

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) m(20) m(27)	-3.2.2 -4.1.3 M5	.7 .2 -3.2 .2 -3.7 . .8 .2 -4.3 .2 -3.9 .	1.4 .2 -2.0 .2 -2.7 .3 M9.	1.6 .2 -3.3 .4 M4 .2 .2 .	.2 -3.4 .2 -4.4 .3	.7 .2 -2.4 .	-2.5 .2 -3.7 .	.9.2 -1.8.2 -3.2.	.3 .2 -2.4 .	2 -1.7 .2	.5 .2 -2.4 .5 M2	2 -1.3.2 N8.5 2 -2.2.2 -2.4.3 M	-1.9 .2	-07.9 -31.3		-5.8.2 -4.8.3	.6 .2 LAT	0 .2 -3.4 .2 -3.9 . 7 .2 -2.8 .2 -4.0 .	.1.2 -4.1.2 -6.6.	2. 6.21	6. 2.6-		-6.3 .2 -7.6 .3	-2.2.2 -3.1. 1.1.2 -1.6.2 -3.0.	-1.6 .2 -3.6 .3	.8.2 -3.5.2 -4.9.3	1.4 .2 -2.1 .2	.3 .2 -3.5 .2 -4.5 .3	1 3 -2.6.2 -3.8.3	7.2 -3.1 .2 -3.4 .3	12.1.2 13.5.
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(11) m(20) m(27)	-3.2.2 -4.1.3 M5	.3 -1.8 .2 -4.3 .2 -3.9 .	.3 -1.4 .2 -2.0 .2 -2.7 .3 M9.	-1.6 .2 -3.3 .4 M4	-1.3 .2 -3.4 .2 -4.4 .3	-2.7 .2 -2.4 .	.2 -2.5 .2 -3.7 .	.9.2 -1.8.2 -3.2.	.3 .2 -2.4 .	. 0.1 - 1.0 -	0.35.2 -2.4.5 M2	. 2 . 22 . 1 . 21 . 3 . 2 3 . MB.5 . 2 . 2 . 2 . 3 . MB.5	1.3 -1.3.2 -1.9.2	.1.3		9 .2 -4.8 .2 -5.8 .2 -4.8 .3	.36 .2 LAT	.0 .2 -3.4 .2 -3.9 . .7 .2 -2.8 .2 -4.0 .	.1.2 -4.1.2 -6.6.	3 - 8 2 -1.3 2 -2.3 3	6. 2.6-	ნ. დ. – ნ	-3.4 .2 -6.3 .2 -7.6 .3	-2.2.2 -3.1. 1.1.2 -1.6.2 -3.0.	3 -1.4 .2	8.2 -3.5.2 -4.9.3	-1.4 .2 -2.1 .2	-1.3 .2 -3.5 .2 -4.5 .3	-2.6.2 -3.8.3	3 -1.7 .2 -3.1 .2 -3.4 .3	.5.2 -2.1.2 -3.5.
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Table Of Observations

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AFGL	2087 2088 5452 5206S	5454 5455 5455 5455	2092 5211S 2090 2094 2096	5457 2098 2097 5213S 2101 2102	2103 2106 5458 2104 5459 2105 2107 2108 2108	5460 5462 5462 5463 5464 5112 2113	2118 2116 2117 2119 2120 5465 5465 2121 2121
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m(11) m(20) m(27)	1.7 .2 -2.3 .2 -2.9 .3 E.9 .2 -4.1 .3	.4 .2 -4.2 .2 -5.2 .3 .5 .2 .4.4 .3	1.0 .2 -2.3 .2 -2.3 .3 K3 1 .2 -1.0 .2 -7.2 .3 M4 2.5 .2 -5.5 .2 -7.2 .3 1.3 .2 -3.8 .2 -4.9 .3 1.5 .2 -1.9 .2 -3.0 .3	.5 .2 -1.9 .2 -3.9 .3 M5 .1 .5 M5 .2 -3.0 .2 M5 .4 -5.1 .3 M4 .8 .3 -3.5 .4 -5.1 .3 M3	2.7 .2 -3.7 .2 -4.2 .3 M6 1.5 .2 -2.3 .2 -3.5 .3 W68 1.5 .2 -2.9 .2 -2.5 .3 W685 .5 -4.4 .2 -5.3 .38 .4 -3.4 .2 -4.2 .3 1.7 .2 -3.1 .2 -4.8 .3	7. 2 -1.2 .2 -4.5 .3 M3 3.2 -2.9 .2 -3.0 .3 3.2 -2.2 .2 -4.2 .3 4.2 -3.9 .2 -5.4 .3 7.1 .2 -4.2 .2 -5.9 .3 C 7.1 .2 -4.2 .2 -5.9 .3 C 7.2 .4 .2 -2.7 .3 M4	1.1 .2 2.3 .2 -5.5 .2 -6.3 .3 2.0 .3 -2.6 .9 -4 .3 .3 1.5 .2 -3.4 .2 -4 .3 .3 1.5 .2 -1.4 .2 -5.1 .3 1.2 .2 -3.1 .2 -5.1 .3 1.4 .2 -5 .1 .3
(11) m(20) m(27)	9 .2 -2.3 .2 -2.9 .3 -2 -2.9 .3 -2 -2.9 .3 -2 -4.1 .3 -2 -2 .2 .2 -4.1 .3 -2 -2 .2 .2 .3 -4 .3	-1.4 .2 -4.2 .2 -5.2 .3 -5 -2.5 .2 -4.4 .3 -2.5 .2 -4.4 .3	-1.0 .2 -2.3 .2 -2.3 .3 K3 1 .2 -1.0 .2 -7.2 .3 M4 -2.5 .2 -5.5 .2 -7.2 .3 -1.3 .2 -3.8 .2 -4.9 .3 -1.5 .2 -1.9 .2 -3.0 .3	8 .3 -1.1 .5 M5 8 .3 -5 .2 -1.9 .2 -3.9 .3 M5 8 .3 -5 .2 M5 5 .4 -3.0 .2 M4 -1.8 .3 -3.5 .4 -5.1 .3 M3	-2.7.2 -3.7.2 -4.2.3 M6 -1.5.2 -2.9.2 -2.5.3 WC8 -2.6.2 -4.7.3 -5.5 -4.4.2 -5.3.3 -8.4 -3.4.2 -5.3.3 -1.7.2 -3.1.2 -4.8.3	-1.7 .2 -1.2 .2 -4.5 .3 M3 -1.9 .2 -2.0 .2 -3.0 .3 M3 -3.2 -2.9 .2 -3.0 .3 -1.4 .2 .3 -1.4 .2 .3 -1.4 .2 .3 -1.4 .2 .3 -1.4 .2 .3 -1.4 .2 .3 -1.4 .2 .3 -1.4 .2 .3 -1.4 .2 .3 -1.4 .2 .3 -1.4 .2 .3 -1.4 .2 .3 -1.4 .2 .3 -1.4 .2 .3 -1.4 .2 .3 -1.4 .2 .3 -1.5 .4 .3 K3 -1.5 .4 .3 K3 -1.5 .4 .3 K3 -1.5 .4 .3 K3 -1.5 .4 .3 K4 -1.	3 -1.1 .2 -2.3 .2 -5.5 .2 -6.3 .3 -2.0 .3 -2.6 .9 -4.3 .3 -1.5 .2 -3.4 .2 -4.3 .3 -2.2 -3.1 .2 -5.1 .3 -1.2 .2 -3.1 .2 -5.1 .3 -1.4 .2 -5.1 .3
4) m(11) m(20) m(27)	.9 .39 .2 -2 .3 .2 -2 .9 .33	PC	SAU 1.4.3 -1.0.2 -2.3.2 -2.3.3 K3 IRC 1.2.31.2 -1.0.2 -7.2.3 AGL -2.5.2 -5.5.2 -7.2.3 AGL -1.3.2 -3.8.2 -4.9.3 UCG 1.8.4 -1.5.2 -1.9.2 -3.0.3	SPC -5.2 -1.9.2 -3.9.3 M5 IRC .8.3 -1.1.5 M5 SAO .8.3 -5.2 M5 SAO 1.5.4 -3.0.2 M4 AGL -1.8.3 -3.5.4 -5.1.3 M3 IRC .8.3 -1.7.2 -2.9.2 M3	.2 .3 -2.7 .2 -3.7 .2 -4.2 .3 M6 .7 .3 -1.5 .2 -2.3 .2 -3.5 .3 M4 .0 .3 -1.5 .2 -2.9 .2 -2.5 .3 WC8 -5 .5 -4.4 .2 -5.3 .3 -8 .4 -3.4 .2 -4.2 .3 -1.7 .2 -3.1 .2 -4.8 .3	1.6 C -1.9 .2 -2.0 .2 -4.5 .3 M3 1.8 .4 -3 .2 -2.2 .2 -4.2 .3 5 .3 -2.1 .2 -4.2 .2 -5.4 .3 K3 1.0 .3 -1 .2 -4.2 .2 -5.9 .3 C5. 1.0 .3 -1 .2 -4.2 .2 -5.9 .3 C5.	2.3 .1.1 .2 .2.3 .2 .5.5 .2 .6.3 .3 .3 .2.0 .2 .3 .2 .2 .4 .3 .3 .1 .2 .2 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
50) Ref m(4) m(11) m(20) m(27)	54 IRC .9 .39 .2 -2.3 .2 -2.9 .3 48 SPC3 .2 -2.9 .2 -4.1 .3 .3 6.2 .2 .3 .2 .3 .4 .3 .3 .5 .5 .5 .5 .3 .4 .3 .3 .5 .5 .5 .5 .5 .5 .5 .5 .3 .4 .3 .3 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	30 SAO 0.0 .38 .5 -3.3 .5 M3 46 SPC -2.5 .2 -3.8 .3 45 SPC -1.4 .2 -4.2 .2 -5.2 .3 34 SPC	42 SAO 1.4 .3 -1.0 .2 -2.3 .2 -2.3 .3 K3 42 IRC 1.2 .3 -1 .2 -1.0 .2 M4 19 AGL -2.5 .2 -5.5 .2 -7.2 .3 35 AGL -1.3 .2 -3.8 .2 -4.9 .3 53 UCG 1.8 .4 -1.5 .2 -1.9 .2 -3.0 .3	13 SPC -5.2 -1.9.2 -3.9.3 M5 O IRC .8.3 -1.1.5 M5 7 SAO .8.3 -5.2 -3.0.2 M5 A41 SAO 1.5.4 -1.8.3 -3.5.4 -5.1.3 M4 A5 AGL -1.8.3 -1.7.2 -2.9.2 M3	0 IRC .2.3 -2.7.2 -3.7.2 -4.2.3 M6 36 SAO .7.3 -2.7.2 -3.7.2 -3.5.3 M4 29 SPC2.3 -2.9.2 -2.5.3 WC8 16 SPC2.9.2 -2.5.3 WC8 11 AGL5.5 -4.4.2 -5.3.3 18 AGL1.7.2 -3.1.2 -4.2.3 10 AGL1.7.2 -3.1.2 -4.8.3	38 SPC -1.6 C -1.9 .2 -2.0 .2 -4.5 .3 M3 25 SPC -1.6 C -1.9 .2 -2.0 .2 -3.0 .3 M3 22 SPC -2 SPC -1.8 .4 -3 .2 -2.9 .2 -3.0 .3 A5 SPC -1.8 .4 -1.4 .2 -3.9 .2 -5.4 .3 K3 42 AGL -2 -1.4 .2 -4.2 .2 -5.9 .3 C 24 IRC -1.0 .3 -1.1 C -4.2 .2 -5.9 .3 C 55.4 .3 B6 IRC -8 .3 -5.4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	6 UCG .9 .3 -1.1 .2 3.4 AGL -2 .3 -1.0 .2 -5.5 .2 -6.3 .3 4 AGL -2.0 .3 -2.6 .9 .2 -5.5 .2 -6.3 .3 2.7 SPC -1.5 .2 -3.2 .3 -4.3 .3 2.2 SPC -1.5 .2 -1.4 .2 -1.4 .2 -5.1 .3 9 SPC -8 .3 -1.4 .2 -5.1 .3 36 IRC .8 .3 -1.4 .2 -5.1 .3
c(1950) Ref m(4) m(11) m(20) m(27)	4 IRC .9 .39 .2 -2 .3 .2 -2 9 .3 1 LKR 1.6 C -1.7 .2 -2 .3 .2 -2 9 .3 8 SPC -2 .9 .3 -4.1 .3 9 AGL .3 C -2 .3 .4 .3 9 COC	1 23 30 SAO 0.0 .38 .5 -3.3 .5 M3 6 58 46 SPC -2.5 .2 -3.8 .3 8 3 45 SPC -1.4 .2 -4.2 .2 -5.2 .3 8 54 34 SPC	1 43 42 SAO 1.4 .3 -1.0 .2 -2.3 .2 -2.3 .3 K3 2 26 42 IRC 1.2 .31 .2 -1.0 .2	9 13 SPC5 .2 -1.9 .2 -3.9 .3 M5 1 0 IRC .8 .3 -1.1 .5 M5 2 7 SAO .8 .35 .2 M5 4 11 SAO 1.5 .4 -5 .1 .3 H5 AGL -1.8 .3 -3.5 .4 -5.1 .3 M3 0 24 IRC .8 .3 -1.7 .2 -2.9 .2 M3	0 IRC .2.3 -2.7.2 -3.7.2 -4.2.3 M6 6 SAO .7.3 -2.7.2 -3.7.2 -3.5.3 M4 9 SPC2.3.2 -3.5.3 W68 8 UCG 1.0.3 -1.5.2 -2.9.2 -2.5.3 W68 6 SPC2.9.2 -2.5.3 W68 1 AGL5.5 -4.4.2 -5.3.3 8 AGL1.7.2 -3.1.2 -4.8.3	9 50 38 SPC -1.6 C -1.9 .2 -2.0 .2 -4.5 .3 M3 55 6 25 SPC -1.6 C -1.9 .2 -2.0 .2 -3.0 .3 M3 6 43 22 SPC -1.6 C -1.9 .2 -2.9 .2 -3.0 .3	6 53 6 UCG9 .3 -1.1 .2 3 44 34 AGL2 .3 -1.0 .2 -5.5 .2 -6.3 .3 3 57 48 AGL2 .3 .2 -5.5 .2 -6.3 .3 1 57 27 SAC2 .3 .2 -5.5 .2 -6.3 .3 1 57 27 SAC1 .5 .2 -3.4 .2 2 47 32 SPC5 .2 -3.4 .2 0 47 40 AGL5 .2 -1.4 .2 5 5 9 SPC1 .31 .2 -5.1 .3 5 46 36 IRC8 .3 -1.4 .2 -5.1 .3
) Dec(1950) Ref m(4) m(11) m(20) m(27)	0 -18 52 54 IRC .9 .39 .2 -2.3 .2 -2.9 .3 3 - 4 37 11 LKR 1.6 C -1.7 .2 -2.3 .2 -2.9 .3 9 -18 29 48 SPC -2.9 .2 -4.1 .3 0 + 6 49 39 AGL .3 C -2.2 .2 -3.4 .3 -1.9 .1 .2 .2 .2 -3.4 .3	2 +31 23 32 50 0.0 .38 .5 -3.3 .5 M3 .5 0 -16 58 46 SPC -1.4 .2 -4.2 .2 -5.2 .3 8 .3 0 -18 54 34 SPC -1.4 .2 -4.2 .2 -5.2 .3 8 .3 8 -18 54 34 SPC	6 -21 43 42 SAO 1.4 .3 -1.0 .2 -2.3 .2 -2.3 .3 K3 O +12 26 42 IRC 1.2 .3 -1.1 .2 -1.0 .2 M4 O -17 56 19 AGL -2.5 .2 -5.5 .2 -5.5 .2 -7.2 .3 O -16 47 35 AGL -1.3 .2 -3.8 .2 -4.9 .3 2 -22 44 53 UCG 1.8 .4 -1.5 .2 -1.9 .2 -3.0 .3	0 -17 9 13 SPC5 .2 -1.9 .2 -3.9 .3 M5 6 +30 11 0 IRC .8 .3 -1.1 .5 M5 5 +15 32 7 SAO .8 .3 -5 .2 2 0 +16 14 41 SAO 1.5 .4 -5 .2	40 0 1RC 2 3 -2.7 2 -3.7 2 -4.2 3 M6 21 36 SAO 7 3 -2.7 2 -3.7 2 -3.5 3 M4 56 29 SPC 3 -1.5 2 -2.9 2 -2.5 3 WC8 59 48 UCG 1.0 3 -1.5 2 -2.9 2 -2.5 3 WC8 51 5 SPC 3 -2.5 4 -2.6 2 -4.7 3 41 2 11 AGL 5 5 5 -4.4 2 -5.3 3 3 3 18 AGL 8 4 -3.4 2 -4.2 3 3 3 18 AGL 1.7 2 -3.1 2 -4.8 3 2 7 10 AGL 1.7 2 -3.1 2 -4.8 3	9 -19 50 36 SPC -1.6 C -1.9 .2 -2.0 .2 -4.5 .3 M3 9 -15 56 25 SPC -1.6 C -1.9 .2 -2.0 .2 -3.0 .3 4 -16 43 22 SPC	2 - 6 53 6 JCG9 .3 -1.1 .2 2 -13 44 34 AGL2 .3 -10 .2 -5.5 .2 -6.3 .3 2 -13 57 48 AGL2 .3 .2 .5 .5 .2 -6.3 .3 8 -11 57 27 SPC 9 .2 .2 .2 .4 .3 .3 9 - 2 47 32 SPC 6 .3 .14 .2 .2 2 -20 47 40 AGL 6 .3 -1.4 .2 .5 .1 .3 5 -35 5 9 SPC 8 .3 -1.4 .2 .5 .5 .5 .5 .5 .5 .3
1950) Dec(1950) Ref m(4) m(11) m(20) m(27)	6.0 -18 52 54 IRC .9 .39 .2 -2.3 .2 -2.9 .3 17.3 - 4 37 11 LKR 1.6 C -1.7 .2 -2.3 .2 -2.9 .3 30.9 -18 29 48 SPC -2.9 .3 -2.9 .2 -4.1 .3 42.0 + 6 49 39 AGL .3 C -2.2 .2 -3.4 .3 4 .3 .4 .4 .3 .4 .3 .4 .4 .3 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .4 .3 .4 .4 .4 .3 .4 .4 .4 .3 .4 .4 .4 .3 .4 .4 .4 .3 .4 .4 .4 .3 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4	1.2 +31 23 30 500 0.0 .38 .5 -3.3 .5 M3 18.0 -16 58 46 SPC -2.5 .2 -3.8 .3 44.9 -18 3 45 SPC -1.4 .2 -4.2 .2 -5.2 .3 7.8 -18 54 34 SPC	15.6 -21 43 42 SAO 1.4 .3 -1.0 .2 -2.3 .2 -2.3 .3 K3 16.0 +12 26 42 IRC 1.2 .31 .2 -1.0 .2 -1.0 .2 21.0 -17 56 19 AGL -2.5 .2 -5.5 .2 -7.2 .3 45.0 -16 47 35 AGL -1.3 .2 -3.8 .2 -4.9 .3 59.2 -22 44 53 UCG 1.8 .4 -1.5 .2 -1.9 .2 -3.0 .3	-17 9 13 SPC5 .2 -1.9 .2 -3.9 .3 M5 +30 11 0 IRC .8 .3 -1.1 .5	31.0 -16 40 0 IRC .2 .3 -2.7 .2 -3.7 .2 -4.2 .3 M6 34.5 + 2 21 36 SA0 .7 .3 -2.7 .2 -3.7 .2 -4.2 .3 M4 36.0 -14 56 29 SPC .7 .3 -1.5 .2 -2.9 .2 -2.5 .3 WC8 38.2 +16 6 16 SPC .2 -2.9 .2 -2.5 .3 WC8 38.2 +16 6 147 AGL5 .5 -4.4 .2 -5.3 .3 56.2 -18 47 AGL5 .5 -4.4 .2 -5.3 .3 3.0 +31 35 18 AGL1.7 .2 -3.1 .2 -4.8 .3 7.2 -16 27 10 AGL1.1 .2 -3.1 .2 -4.8 .3	-19 50 38 SPC -1.6 C -1.9 .2 -2.0 .2 -4.5 .3 M3 -15 56 25 SPC -1.6 C -1.9 .2 -2.0 .2 -3.0 .3 M3 -16 43 22 SPC -1.6 C -1.9 .2 -2.9 .2 -3.0 .3 -2.1 5 45 JC SPC -1.8 .4 -3 .2 -2.2 .2 -2.9 .2 -3.0 .3 -12 14 50 SPC -1.4 .2 -3.9 .2 -5.4 .3 K3 -11 46 42 AGL -1.0 .3 -1 C -13 27 24 IRC -1.0 .3 -1 C -15 20 36 IRC -18 .3 -5 .4 .3 M44	- 6 53 6 JCG .9 .3 -1.1 .2 -13 44 34 AGL .2 .3 -10 .2 -13 57 48 AGL .2 .3 .2 .5 .2 -6.3 .3 -14 57 27 SPC .9 .2 .9 .2 -4.3 .3 -20 47 40 AGL .5 .2 -1.4 .2 -20 47 40 AGL .5 .2 -1.4 .2 -35 5 9 SPC .7 .3 .1 .2 -5.1 .3 -15 46 36 IRC .8 .3 -1.4 .2 -5.1 .3 -15 46 36 IRC .8 .3 -1.4 .2 -5.1 .3
50) Dec(1950) Ref m(4) m(11) m(20) m(27)	6.0 -18 52 54 IRC .9 .39 .2 -2.3 .2 -2.9 .3 7.3 - 4 37 11 LKR 1.6 C -1.7 .2 -2.3 .2 -2.9 .3 6.9 -18 29 48 SPC .3 C -1.7 .2 -2.9 .2 -4.1 .3 7.0 + 6 49 39 AGL .3 C -2.9 .2 -3.4 .3 7 0.1 8 41 10 CPC .3 10 10 10 10 10 10 10 10 10 10 10 10 10	10 18.0 -16 58 46 SPC -2.5 -2.5 -2 -3.8 .3 10 18.0 -16 58 45 SPC -1.4 .2 -4.2 .2 -5.2 .3 11 7.8 -18 54 34 SPC -1.4 .2 -4.2 .2 -5.2 .3 11 7.8 -18 54 34 SPC	11 15.6 -21 43 42 SAO 1.4 .3 -1.0 .2 -2.3 .2 -2.3 .3 K3 11 16.0 +12 26 42 IRC 1.2 .31 .2 -1.0 .2	1.0 -17 9 13 SPC5 .2 -1.9 .2 -3.9 .3 M5 2.0 +30 11 0 IRC .8 .3 -1.1 .5 0.5 +15 32 7 SA0 .8 .35 .2 1.0 +16 14 41 SA0 1.5 .4 -3.0 .2 M4 5.2 -16 51 46 AGL -1.8 .3 -3.5 .4 -5.1 .3 1.0 -17 40 24 IRC .8 .3 -1.7 .2 -2.9 .2 M3	1.0 -16 40 0 IRC .2 .3 -2.7 .2 -3.7 .2 -4.2 .3 M6 4.5 + 2 21 36 SAO .7 .3 -2.7 .2 -3.7 .2 -4.2 .3 M4 6.0 -14 56 29 SPC .7 .3 -2 .3 .2 -3.5 .3 M4 6.7 -18 59 48 UCG 1.0 .3 -1.5 .2 -2.9 .2 -2.5 .3 WC8 8.2 +16 6 16 SPC5 .5 -4.4 .2 -5.3 .3 8.2 +16 6 147 AGL5 .5 -4.4 .2 -5.3 .3 8.3 0 +31 33 18 AGL1.7 .2 -3.9 .4 7.2 -16 27 10 AGL1.7 .2 -3.1 .2 -4.8 .3	2.8 -19 50 38 SPC -1.6 C -1.9 .2 -1.2 .2 -4.5 .3 M3 3.9 -15 56 25 SPC -1.6 C -1.9 .2 -2.9 .2 -3.0 .3 M3 0.4 +16 43 22 SPC -1.6 C -1.9 .2 -2.9 .2 -3.0 .3	7.2 - 6 53 6 JCG9 .3 -1.1 .2 2.6 +17 57 37 SAO2 .3 -10 .2 -5.5 .2 -6.3 .3 6.2 -13 44 34 AGL2 .3 .10 .2 -5.5 .2 -6.3 .3 6.0 -13 57 48 AGL -2.0 .3 -2.6 .9 6.8 -11 47 27 SPC -15 5 .2 -4.3 .3 8.0 +14 57 27 SPC -15 5 .2 -3.4 .2 8.9 - 2 47 32 SPC -5 5 .2 -3.4 .2 1.2 -20 47 40 AGL -2 .2 -3.1 .2 -5.1 .3 0.5 -35 5 9 SPC -1.4 .2 -5.1 .3 2.0 -15 46 36 IRC .8 .3 -1.4 .2 -5.5 C

Table Of Observations

۵	1-10 1-01- RWL RWL RL 0-04	0	1 4 0 4 8 6 4 - 4 6	0441 0000FP	22.00 6.00 1.00 1.00 1.00 1.00 1.00 1.00
-	25 82 1 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1	2.58.28.28.28.28.28.28.28.38.38.38.38.38.38.38.38.38.38.38.38.38	250 250 250 250 250 250 250 250 250 250	200.00 200.00 200.00 200.00 200.00 200.00 200.00	605.2 605.2
sqo	60 03 11 11 11 11 11 11 11 11 11 11 11 11 11	0 22 22 22 22 22 22 22 22 22 22 22 22 22	E0 -5-	60 23 18 18 18 18 18 18 18 18 18 18 18 18 18	20 C S C C C C C C C C C C C C C C C C C
Comments	E E E NGC 6618 E E E E E E E E E E E E E E E E E E E	₩ ₩	ш ш ш	GALAXY-SBR	
Nones	MFE 55 M 17 V3082 SGR M17C DEL SGR	V3098 SGR KAP LYR DG 16684 RCW 161 106 HER V1014 DPH V4028 SGR MWC 922	TU LYR ETA SER SHARP. 48	GC 25082 NGC 6627 DG 36186 FR SCT LAM UMI	V2544 SGR SHARP. 53 TW LYR 21 SGR SHARP. 50 FIR #17
Ŧ	6859	6872 6868 6861	6989	6891	68 98 95 895 895 895 895 895 895 895 895
TMSS	-10410 -10411 -20466 -30376	-10412 -30407E 40313 30333 -20467 20361 10356	30334 347 -20470	20362 50279 10414 10415 349	20364 40315 -20478
AFGL	5468 2123 5469 5470 2125 2124 5471 5472	2127 5474 2129 2130 52238 2128 52248 5475 2131	5476 5477 2133 2134 5478 5226S 5479 5275	2137 2138 2138 2139 52285 5481 5482 5483 2142	2145 2143 5484 5485 2147 2148 2149 5486 5486
Spec Type	X X X X X III	M10 K2 IIIP M2 IIIB M1 IIIB M5 G	M6 K0 III M7	MO IIIAB M2 IIIAB M3EP IA M1 III	K2.5 IIIAB M6 K2 II B0EP
m(27)	6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6	6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6		6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	2-1 2-3 4-2 2-2 2-2 2-3 2-3 2-3 3-3 3-3 3-3 3-3 3
m(20)	25.58 2.5 2 25.68 2.7 6 25.68 3 2.7 5	2.0.2. 2.0.4.	2	-3.6.2.2.2.3.6.2.3.6.2.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
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m(4)	e. 6.0 1. 6. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8.	6 0400 40 6 0400 40	4.n. 4. 0.4.	0 4-n 00 E 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	8.0 6. 6.4. 6.6. O
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Table Of Observations

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(11) m(20) m(27)	1.5 .2 -4.1 .2 -5.1 .3 1.5 .2 -2.3 .2 -4.0 .3 1.3 .2 -1.2 .2 -2.5 .3	1.3 .2 -3.7 .2 2.2 .2 -2.9 .2 -3.4 .3 C 2.7 .4 -3.6 .5 M2 1.8 .2 -3.7 .2 -5.5 .3 M7[.1 .34 .2 -4.0 .2 -4.9 .3 M .9 .3 -1.2 .2 -1.5 .2 M -1.4 .2 -2.6 .2 -3.9 .3 M .1 .2 -2.3 .2 -3.6 .2 -3.9 .3 M .5 .3 K2	.3 -2.2 .2 -3.4 .2 -4.5 .3 -2.7 .2 -3.5 .2 -3.6 .3 -3.5 .2 -3.6 .3 -3.	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1.2 .2 -1.6 .2 M -1.9 .2 -2.9 .3 M 8 .2 -2.1 .2 -3.0 .3 M 3.0 .2 -5.5 .2 -7.1 .3 C 2.1 .2 -2.4 W C5.	WCG 1.5 W MB -1.4 .2 -3.1 .3 M4 .2 .2 -2.4 .2 -2.5 .3 K5 MO MO 1.0 .2 -2.5 .2 MMBE
Ref m(4) m(11) m(20) m(27)	AGL 1.6 .4 -1.5 .2 -4.1 .2 -5.1 .3 KLM .9 .3 -1.5 .2 AGL -5 .2 -2.3 .2 -4.0 .3 CIO .6 .3 -1.3 .2 -1.2 .2 -2.5 .3 SPC .0 .2	.6 .3 -2.2 .2 -2.9 .2 -3.4 .3 C .2 .3 .2 .7 .4 -3.6 .5 .8 .1 .8 .2 -3.7 .2 -5.5 .3	1.1 .34 .2 -4.0 .2 -4.9 .3 M .9 .3 -7 .2 -1.5 .2 MG -1.2 -2.3 .2 -3.6 .2 -3.9 .3 M4 .5 .3 K2	. 8 .3 -2.2 .2 -3.6 .2 -2.8 .38 .3 -2.2 .2 -3.4 .2 -4.5 .3	SPC 1.2 .37 .2 -2.2 .2 .2 .3 .3 .5 .5 .3 .4 .2 .1.5 .2 .2 .1.5 .3 .4 .2 .1.5 .2 .2 .1 .3 .1 .3 .1 .4 .2 .1 .5 .2 .2 .1 .3 .1 .3 .4 .2 .1 .5 .2 .2 .1 .3 .4 .2 .1 .3 .4 .2 .1 .3 .4 .2 .1 .3 .2 .4 .1 .2 .5 .3 .3 .5 .5 .3 .5 .5 .3 .5 .5 .3 .5 .5 .3 .5 .5 .3 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	.4 .3 -1.2 .2 -1.6 .2 .3 M .3 .3 -1.2 .2 -1.6 .2 -2.9 .3 M .4 .38 .2 -2.1 .2 -3.0 .3 M .6 .4 -3.0 .2 -5.5 .2 -7.1 .3 C .6 .3 -2.1 .2 -2.4 W C .6 .3 -2.1 .2 -2.4 C	VCG 2.3 1.5 W — 1.4 .2 .3.1 .3 M8 — 1.5 .2 -3.0 .3 M4 — 1.5 .2 -3.5 .3 M4 — 1.5 .2 -2.5 .3 K5 — 1.0 .2 -2.5 .2 M8 M8E .6 .3 — 1.0 .2 -2.5 .2 M8E .6 .3 — 1.0 .2 -2.5 .2 M8E
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1950) Ref m(4) m(11) m(20) m(27)	3 15 40 AGL 1.6 .4 -1.5 .2 -4.1 .2 -5.1 .3 5 44 16 KLM .9 .3 -1.5 .2 -2.3 .2 -4.0 .3 153 8 AGL .6 .3 -1.3 .2 -1.2 .2 -2.5 .3 .5 43 11 SPC .0 .2	2 27 41 AGL -1.3 .2 -3.7 .2 6 55 55 UCG 6 .3 -2.2 .2 -2.9 .2 -3.4 .3 C 3 27 1 UCG 1.2 .3 -2.7 .4 -3.6 .5 M2 4.2 51 AGL -1.8 .2 -3.7 .2 -5.5 .3 M71	1 7 12 EIC 1.1 .34 .22 -4.0 .2 -4.9 .3 M 7 29 34 EIC .9 .3 -7 .2 -1.5 .2 M6	8 42 32 EIC 1.1 .3 -1.1 .2 -1.6 .2 -2.8 .3 .3 51 44 UCG .8 .3 -2.2 .2 -3.4 .2 -4.5 .3 34 24 13 SPC7 .2 -3.5 .2 11 32 18 SPC4 .2 -2.3 .2 -3.6 .3	13 5 0 IRC 1.2 .37 .2 -2.2 .2 .2 .3 .7 .4 .2 .2 .2 .2 .2 .3 .3 .4 .2 .2 .2 .2 .2 .3 .3 .4 .2 .2 .2 .2 .3 .3 .4 .2 .3 .4 .2 .3 .3 .4 .3 .4 .2 .1 .3 .3 .4 .2 .1 .3 .4 .2 .1 .3 .4 .2 .1 .3 .4 .2 .1 .3 .4 .2 .1 .3 .4 .2 .1 .3 .4 .2 .1 .3 .4 .2 .1 .3 .4 .2 .2 .1 .3 .4 .2 .2 .2 .4 .1 .2 .5 .3 .3 .4 .2 .2 .2 .2 .3 .3 .4 .2 .2 .2 .2 .2 .3 .3 .4 .2 .2 .2 .2 .3 .3 .4 .2 .2 .2 .2 .3 .3 .4 .2 .2 .2 .2 .3 .3 .4 .2 .2 .2 .2 .3 .3 .4 .2 .2 .2 .2 .3 .3 .4 .2 .2 .2 .3 .3 .4 .2 .2 .2 .3 .3 .4 .2 .2 .2 .3 .3 .3 .4 .3 .4 .3 .2 .2 .3 .3 .3 .4 .3 .4 .3 .4 .3 .2 .2 .5 .3 .3 .3 .4 .4 .3 .4 .4 .3 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4	6 12 49 SPC	10 1 24 JCG 1.0 .3 WC9 10 31 22 SPC 1.2 .3 1.5 W -1.4 .2 -3.1 .3 M8 10 31 22 SPC 1.2 .3 1.5 W -1.4 .2 -3.1 .3 M4 12 SPC 1.2 .3 1.5 W -1.5 .2 -3.0 .3 M4 12 SPC 1.4 .3 SPC 1.4 .3 SPC 1.4 .3 SPC 1.5 .3 -1.0 .2 -2.5 .2 M8 14 8 46 SPC 1.1 .3 .1 .2 -2.5 .2 M77 M3
50) Dec(1950) Ref m(4) m(11) m(20) m(27)	8.9 -13 15 40 AGL 1.6 .4 -1.5 .2 -4.1 .2 -5.1 .3 2.2 + 5 44 16 KLM .9 .3 -1.5 .2 -2.3 .2 -4.0 .3 3.1 -2.5 6 .3 -1.3 .2 -1.2 .2 -2.5 .3 .7 .4 -25 6 .3 11 SP	0.9 -12 27 41 AGL -1.3 .2 -3.7 .2 7.6 - 6 55 55 UCG .6 .3 -2.2 .2 -2.9 .2 -3.4 .3 C 8 +23 27 .1 UCG 1.2 .3 -2.7 .4 -3.6 .5 M2 1.5 -12 42 51 AGL -1.8 .2 -3.7 .2 -5.5 .3 3.5 + 3 52 57 SAO .4 .3 -9 .2 -1.3 .2 M71	5.0 + 1 7 12 EIC 1.1 .34 .2 6.9 .3 M 3.3 -1.2 1.3 5.0 .2 -4.9 .3 M 3.9 + 7 29 34 EIC 9 .3 -7.2 2 -1.5 .2 M6 7.0 -11 48 36 SPC -1.3 -2 -2.6 .2 -3.9 .3 M4 1.1 -12 30 3 CIO1 .2 -2.3 .2 -3.6 .2 M4 K2	8.1 - 8 42 32 EIC 1.1 .3 -1.1 .2 -1.6 .2 -2.8 .3 .1.6 - 3 51 44 UCG .8 .3 -2.2 .2 -3.4 .2 -4.5 .3 8.2 -34 24 13 SPC -7 .2 -3.5 .2 5.8 -11 32 18 SPC -6.4 .2 -2.3 .2 -3.6 .3	5.9 -11 48 12 SPC	8.3 + 6 12 49 SPC 2.0 +24 19 42 AGL 1.4 .3 7.2 +82 36 52 UCG 1.5 .3 -1.2 .2 -1.6 .2 M 1.7 -14 30 32 SPC 1.7 -19 .2 -2.9 .3 M 4.0 - 1 24 12 AGL 1.3 .3 -1.2 .2 -2.1 .2 -2.9 .3 M 7.7 - 2 7 42 KLM 1.6 .4 -3.0 .2 -5.5 .2 -7.1 .3 C.5, 4 + 4 20 42 EIC 1.0 .3 -2.1 .2 -2.4 W C.5, 6 .3 -2.1 .2 -2.4 W C.5,	6.5 -10 1 24 UCG 1.0 .3 WG9 1.0 +38 36 14 SAO 1.2 .3 1.5 W -1.4 .2 -3.1 .3 M8 6.4 - 9 59 8 SPC -2.1 5.2 -2.4 .2 -3.0 .3 M4 7.0 -21 15 27 SPC .9 .3 -1.5 .2 -2.4 .2 -2.5 .3 K5 6.0 +86 39 30 AGL 1.4 .3 WG9 4.0 -20 8 30 IRC 1.5 .3 -1.0 .2 -2.5 .2 M8 7.7 - 7 28 39 EIC 1.6 .3 -1.0 .2 -2.5 .2 M7 2.6 -14 8 46 SAO 1.1 .3 .1 .28 C M3
) Dec(1950) Ref m(4) m(11) m(20) m(27)	2 48.9 -13 15 40 AGL 1.6 .4 -1.5 .2 -4.1 .2 -5.1 .3 3 2.2 + 5 44 16 KLM .9 .3 -1.5 .2 -2.3 .2 -4.0 .3 3 31.4 -11 53 8 AGL .6 .3 -1.5 .2 -2.3 .2 -4.0 .3 3 47.4 -25 6 10 CIG .6 .3 -1.3 .2 -1.2 .2 -2.5 .3 47.4 -25 43 11 SPC	0.9 -12 27 41 AGL -1.3 .2 -3.7 .2 7.6 - 6 55 55 UCG .6 .3 -2.2 .2 -2.9 .2 -3.4 .3 C 8 +23 27 .1 UCG 1.2 .3 -2.7 .4 -3.6 .5 M2 1.5 -12 42 51 AGL -1.8 .2 -3.7 .2 -5.5 .3 3.5 + 3 52 57 SAO .4 .3 -9 .2 -1.3 .2 M71	4 25.0 + 1 7 12 EIC 1.1 .34 .2 4.0 .2 -4.9 .3 M 4 29.3 -12 1 36 UCG 4.2 C -1.3 .2 -4.0 .2 -4.9 .3 M 4 43.9 + 7 29 34 EIC .9 .32 .2 -1.5 .2 MG 4 48.1 -12 30 3 CIO1 .2 -2 .3 .2 -3.6 .2 -3.9 .3 M4 53.1 -25 27 4 SAD .5 .3 .3 .2 -3.6 .2 K2	4 58.1 - 8 42 32 EIC 1.1 .3 -1.1 .2 -1.6 .2 -2.8 .3 .5 1.6 - 3 51 44 UG .8 .3 -2.2 .2 -3.4 .2 -4.5 .3 5 8.2 -34 24 13 SPC 7 .2 -3.5 .2 5 15.8 -11 32 18 SPC 4 .2 -2.3 .2 -3.6 .3	9 -11 48 12 SPC	3 + 6 12 49 SPC	VC9 1.5 -10 1 24 JCG 1.0 .3 1.6 +38 36 14 SAO 1.2 .3 1.5 W -1.4 .2 -3.1 .3 M8 1.7 -7 28 39 EIC 1.6 .3 -1.0 .2 -2.5 .2 M7 WC9 WC9 WC9 WC9 WC9 WC9 WC9 WC

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Comments					-	RCW 173	SHARP. 59		
Names	T LYR AS 301	EGG NEB	V2588 SGR	SVS 4206 V1692 SGR	ALF ISS	SHARP. 60	RCW 172 RX SCT CZ SER OH26.5+0.6	u. 38	X OPH GC 25494 XY LYR DO 16917
£					6973			1001	7002
TMSS	40321		-10437	-20497	-10438	-20500	-10441 359	00	10366 -10446 -20505 40323 20369 -10447
AFGL	2187 5502 5503	5505 5505 5506 2189 2190	2191 2194 2193 5508	5510 2195 2196 5511	2197 5512 5513 2199	2200 2200 5514 5515 5263S	2202 2203 2204 2204 2207	52685 2208 5516 2210	2211 2211 22113 22114 22215 22116 22118 22118
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m(27)	2. 2. 3. 5. 3. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.		2.45.00 2.46.00 2.00.00 2.00.00	-5.4.3 -5.3.3 M5	3.7 .3 K3 3.0 .3 K6 4.3 .3 M	0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.	55.4 .3 C5.5 .5 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	13.2 .3 KO	2.3 M6.5 M8.5 M8.5 M8.5 M8.4 M8.4 M8.4 M8.4 M8.4 M8.4 M8.4 M8.4
(27)		14.4.4.3.3 14.4.6.3.3.3.3.3.4.4.3.3.3.3.3.3.3.3.3.3.	2.4.1 2.4.1 2.6.2 2.0.0 2.0.0	.7 .2 -5.4 .3 M5	13.0 .3 K3 13.0 .3 MC	0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.	15. 4 . 3 . 4 . 3 . 4 . 3 . 4 . 3 . 4 . 5 . 5 . 5 . 5 . 5 . 5 . 5 . 5 . 5	-3.2.3 KO V C -3.2.3 KO V C -4.3.3 KO V C -2.2.3 KO V C -3.3 KO V C -4.3.3 KO V C -4.3	13.2 .3 M6.5 M4 M3 M4-5 M4-5 M4-5 M5-5 M5-
m(20) m(27)	.4 -1.4 C .3.5 .3 C6,	2 -2.8 .2 -3.3 .3 M6. 2 -2.7 .2 -4.4 .3 M6. 2 -2.7 .2 -4.9 .3 2 -4.4 .2 -5.4 .3 M6. 2 -2.5 .2 -5.4 .3 M6	2 -2.8 .2 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	.2 -3.7 .2 -5.4 .3 M5 .2 -3.7 .2 -5.3 .3	.2 -1.9 .2 -3.0 .3 KG.2 -4.3 .3 KG.2 .4.3 .3 KG.3 KG.3 KG.3 KG.3 KG.3 KG.3 KG.3	.2 -4.0 .2 -5.9 .3 .3 .2 -2.4 .2 -3.3 .3 .3 .1 .4 -3.3 .2 -4.3 .3 M5	.2 -3.3 .2 -5.4 .3 C5.5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4	.2 -3.1 .2 -4.3 .3 KO v	.2 -3.3 .2 -3.2 .3 M6.5 .2 .2 -2.6 .2 -3.2 .3 M6.5 .2 .3 .2 .3 .4 .3 M6.5 .3 .1 .2 .3 .1 .2 .4 .1 .3 M1 .5 .3 .1 .2 .4 .1 .3 M1 .5 .3 .1 .2 .4 .1 .3 M1
m(27)	.3 .4 -1.4 C .3 .5 .3 .6,	2 -2.8 .2 -3.3 .3 M6. 2 -2.7 .2 -4.4 .3 M6. 2 -2.7 .2 -4.6 .3 .3 .2 -4.6 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	2 -2.8 .2 2 -3.6 .2 -5.2 .3 2 -2.7 .2 -4.6 .3 -2.3 .2 -6.3 .3 ×	2 -3.7 .2 -5.4 .3 M5 2 -3.7 .2 -5.3 .3	2 -1.9 .2 -3.0 .3 KG 2 -3.6 .2 -4.3 .3 KG	2 -4.0 .2 -5.9 .3 2 -2.4 .2 -3.3 .3 -1.7 .2 -3.8 .3 4 -3.3 .2 -4.3 .3 M5	5. 2. 2. 13. 3. 2. 15. 4. 3. C5. 5. 6. 6. 5. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.	2.9 .2 -3.1 .2 -4.3 .3 KO V	2 -3.3.2 2 -2.6.2 -3.2.3 2 -2.8.2 -3.0.3 M6.5 5 -1.7.2 M4 3 -1.0 C M4-5 2 -3.1.2 -4.1.3 M1
) m(11) m(20) m(27)	.3 -1.3 .4 -1.4 C -1.4 C -1.3 .2 -2.5 .3 -2.3 .2 -3.5 .3	C -1.9 .2 -3.3 .2 -4.4 .3 M6. -0.2 -2.4 .2 -4.9 .3 .3 -1.9 .2 -4.9 .3 .3 -1.9 .2 -2.4 .2 -5.4 .3 -5.4 .3 .3 -1.9 .2 -5.4 .3 M6	.3	.4 -1.8 .2 -3.7 .2 -5.4 .3 M5 -7.7 .2 -5.3 .3	.3 -1.3.2 -3.7 .3 K3 -8.2 -1.9.2 -3.0 .3 KG -8.2 -3.6 .2 -4.3 .3 KG -2.9 .2 -3.6 .2 -4.3 .3 KG -2.9 .2 -4.9 .2 -	-1.3.2 -4.0.2 -5.9.3 -5.2 -2.4.2 -3.3.3 -1.7.2 -3.8.3 -1.2.4 -3.3.2 -4.3.3 N5	.3 -1.2 .2 -3.3 .2 -5.4 .3 C5,5 .3 .2 -5.4 .3 C5,5 .3 .2 -2.6 .2 -4.9 .2 -5.5 .3 M 5.5 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	.39 .23.2 .3 K0 C C C C C C C C C C C C C C C C C C	.3 -1.3 .2 -3.3 .2 .3 .8 .8 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
m(11) m(20) m(27)	5 .3 -1.3 .4 -1.4 C -3.5 .3 -1.3 .2 -2.3 .2 -3.5 .3 .	2.7 C -1.9 .2 -2.8 .2 -3.3 .3 .3 .4 .4 .3 M6	39 .2 -2.8 .2 -1.0 .2 -3.6 .2 -5.2 .3 -1.1 .2 -2.7 .2 -4.6 .3 -7 .2 -3.7 .3 -6.3 .3 ×	37 .2 -3.7 .2 -5.4 .3 M57 .2 -5.3 .3	3 -1.3.2 -3.7.3 K3 -8.2 -1.9.2 -3.0.3 KC -2.9.2 -3.6.2 KC -2.3.8 KC -2.9.2 -3.6.2 -4.3.3 KC -2.9.2 -3.6.2 KC -4.3.3 KC -2.9.2	-1.3.2 -4.0.2 -5.9.3 5.2 -2.4.2 -3.3.3 -1.7.2 -3.8.3 -1.2.4 -3.3.2 -4.3.3 M5	.0 .3 -1.2 .2 -3.3 .2 -5.4 .3 C5,5 .4 .5 .4 .3 C5,5 .4 .5 .4 .5 .4 .5 .5 .3 M	C 0.0 C 0.0 C 3.2 .3 KO V C -2.9 .2 -3.1 .2 -4.3 .3 KO V C -2.9 .2 -6.0 .2 -7.2 .3 KO	3 -1.3 .2 -3.3 .2 -3.2 .3 M6.5 3 -1.7 .2 -2.6 .2 -3.2 .3 M6.5 3 -1.4 .5
(4) m(11) m(20) m(27)	5 .3 -1.3 .4 -1.4 C -3.5 .3 -1.3 .2 -2.3 .2 -3.5 .3 .	.7 C -1.9 .2 -3.3 .2 -4.4 .3 M6. -1.0 .2 -2.7 .2 -4.6 .3 -5.5 .2 -4.9 .3 .4 .3 -1.9 .2 -4.4 .2 -5.4 .3 -5.4 .3 .3 -1.4 .2 -5.5 .2 -2.4 .3 M6	.5 .3	PC	.8 .3 -1.3 .2 -1.9 .2 -3.0 .3 K3 -8 .2 -1.9 .2 -3.0 .3 KC	-1.3.2 -4.0.2 -5.9.3 5.2 -2.4.2 -3.3.3 -1.7.2 -3.8.3 -1.2.4 -3.3.2 -4.3.3 M5	.0 .3 -1.2 .2 -3.3 .2 -5.4 .3 C5,5 .4 .5 .4 .3 C5,5 .4 .5 .4 .5 .4 .5 .5 .3 M	RC 1.3 .39 .29 .29 .2 .3 K0 VAO 0.0 C 0.0 C 0.0 C AO V AO V	1.8 .3 -1.3 .2 -3.3 .2 -3.2 .3 .3 .1 .2 -2.6 .2 -3.2 .3 .4 .5 .1 .2 -2.6 .2 -3.0 .3 .4 .5 .1 .2 .3 .1 .2 .3 .4 .5 .1 .2 .3 .1 .2 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
50) Ref m(4) m(11) m(20) m(27)	39 SAO5 .3 -1.3 .4 -1.4 C 16 SPC5 .3 -1.3 .2 -2.6 .2 -3.5 .3 39 SPC -2.3 .2 -3.0 .3	5 SPC	38 SPC 1.5 .39 .2 -2.8 .2 56 AGL 1.5 .39 .2 -2.8 .2 56 AGL -1.0 .2 -3.6 .2 -5.2 .3 34 AGL -1.1 .2 -2.7 .2 -4.6 .3 7 SPC -7 .2 -2.5 .2 -3.7 .3 M	34 SPC 26 AGL 1.8 .4 -1.8 .2 -3.7 .2 -5.4 .3 34 SAO .7 .37 .2 -3.7 .2 -5.3 .3 0 SPC -7 .2 -3.7 .2 -5.3 .3	5 SPC 8 .3 -1.3 .2 -5 .2 -3.7 .3 K3 5 SPC 8 .2 -1.9 .2 -3.0 .3 MC 17 JCG 1.8 .4 -2.9 .2 -3.6 .2 -4.3 .3 M	29 SAU 1:1 :3 .2 -4.0 .2 -5.9 .3 .1	58 AGL -1.3 .2 -3.3 .2 -5.1 .3 .5.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .	54 IRC 1.3 .39 .2 -3.2 .3 K0 10 SAO 0.0 C 0.0 C 0.0 C AO V 6 SPC4 .2 -3.1 .2 -4 .3 .3 AO V 37 WYO -2.9 .2 -6.0 .2 -7.2 .3 K0	25 AGL 1.8 .3 -1.3 .2 -3.3 .2 6 SPC 2.0 SAO -1.3 .3 -3.1 .2 -2.6 .2 -3.2 .3 M6.5 SPC 2.0 SAO -1.3 .3 -3.1 .2 -2.8 .2 -3.0 .3 M6.5 SPO -1.3 .3 -3.1 .2 -2.8 .2 -3.0 .3 M6.5 SPO -1.4 .3 -4.4 .5
c(1950) Ref m(4) m(11) m(20) m(27)	6 57 39 SAO5 .3 -1.3 .4 -1.4 C	9 41 5 5PC - 2 - 2 - 8 - 2 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3	1 3 30 AGL 1.5 .39 .2 -2.8 .2 7 57 56 AGL -1.0 .2 -3.6 .2 -5.2 .3 8 46 34 AGL -1.1 .2 -2.7 .2 -4.6 .3 7 45 7 5PC -7 .2 -2.5 .2 -3.7 .3 M	18 34 SPC 35 26 AGL 1.8 .4 -1.8 .2 -3.7 .2 -5.4 .3 18 34 SAO .7 .37 .2 -3.7 .2 -5.3 .3 26 0 SPC .7 .2 -7 .2 -5.3 .3	8 16 51 SAO .8 .3 -1.3 .2 -3.7 .3 K3 8 33 5 SPC -8 .2 -1.9 .2 -3.0 .3 MC 2 18 37 SPC -8 .2 -8 .2 MC 5 33 17 UCG 1.8 .4 -2.9 .2 -3.6 .2 -4.3 .3 M	7 42 29 5AU 1:1 .3 .2 -4.0 .2 -5.9 .3 7 12 30 AGL -1.3 .2 -4.0 .2 -5.9 .3 7 45 23 5PC -1.5 .2 -2.4 .2 -3.3 .3 6 42 31 AGL -1.2 .4 -3.3 .2 -4.3 .3 85 524 IRC 1.3 .4 -1.2 .4 -3.3 .2 -4.3 .3 M5	P AGL 7 EIC 1.0 .3 -1.2 .2 -3.3 .2 -5.4 .3 C5,5 .0 .0 .2 -1.2 .2 -3.3 .2 -5.4 .3 C5,5 .0 .0 .2 .2 .2 .3 .3 .2 .5 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	6 54 54 18C 1.3 .39 .2 -3.2 .3 K0 8 44 10 SAO 0.0 C 0.0 C 0.0 C 0.0 C AO V 6 9 6 SPC4 .2 -3.1 .2 -4.3 .3 6 6 50 37 WYO -2.9 .2 -6.0 .2 -7.2 .3 K0	5 33 25 AGL 1.8 .3 -1.3 .2 -3.3 .2 6 22 6 SPC -1.7 .2 -2.6 .2 -3.2 .3 M6.5 8 47 20 SAO -1.3 .3 -3.1 .2 -2.8 .2 -3.0 .3 M6.5 5 4 SAO 1.4 .3 -4 .5 7 .2 -1.7 .2 -1.7 .2 -3.0 .3 M6.5 9 37 23 SAO -6 .2 -1.2 .3 -1.0 C M4-5 6 6 4 SPC -6 .2 -1.2 .3 -1.0 C M6.5 148 6 IRC .9 .3
Dec(1950) Ref m(4) m(11) m(20) m(27)	+36 57 39 SAQ5 .3 -1.3 .4 -1.4 C -5 .2 16 SPC -13 .2 -2.6 .2 -3.5 .3 -3.9 SPC -2.3 .2 -2.3 .2 -3.0 .3	-39 41 5 SPC -16 2 -2.8 2 -3.3 3 3 -9 9 15 AGL 2.7 C -1.9 2 -3.3 .2 -4.4 .3 M6. -8 10 50 SPC -1.0 .2 -2.7 .2 -4.6 .3 -9 22 53 SPC -5.2 -2.4 .2 -4.9 .3 +14 12 6 AGL .4 .3 -7 21 54 AGL -1 31 45 JCG 1.3 .3 -1.4 .2 -2.5 .2 -2.4 .3 M6	-21 3 30 AGL 1.5 .39 .2 -2.8 .2 -8 .2 -7 .5 AGL -1.0 .2 -3.6 .2 -5.2 .3 -5 4 6 4 5 4 AGL -1.1 .2 -2.7 .2 -4.6 .3 -7 .5 -7 .5 -7 .5 -7 .5 -3 .3 M	-19 18 34 SPC - 8 35 26 AGL 1.8 .4 -1.8 .2 -3.7 .2 -5.4 .3 -19 18 34 SAO .7 .37 .2 -5.3 .3 M5 - 7 26 0 SPC .7 .2 -7 .2 -5.3 .3	- 8 16 51 SAO .8 .3 -1.3 .2 -3.7 .3 K3 -8 33 5 SPC -8 .2 -1.9 .2 -3.0 .3 -32 18 37 SPC -8 .2 -8 .2 -3.6 .2 -4.3 .3 MC +5 33 17 UCG 1.8 .4 -2.9 .2 -3.6 .2 -4.3 .3 MC	+51 44 29 5AU 111 3	- 7 23 58 AGL -1.3 .2 -3.3 .2 -5.1 .3 .2 -7 38 47 EIC 1.0 .3 -1.2 .2 -3.3 .2 -5.4 .3 C5,5 = 2 41 50 EIC .4 .3 -5 .4 .8 .5 .4 .8 .5 .4 .8 .5 .3 M 6.5 = 5 26 34 WYO 2.4 C -2.6 .2 -4.9 .2 -5.5 .3 M 6.5 = 6 20 42 AGL -4 .2 .4 .4 .2 -3.9 .3 MAF	- 6 54 54 18C 1.3 .39 .2 - 3.2 .3 K0 +38 44 10 SAO 0.0 C 0.0 C 0.0 C AO V AO V - 6 9 6 SPC - 4 .2 -3.1 .2 -4 .3 .3 - 6 50 37 WYO - 2.9 .2 -6.0 .2 -7.2 .3 K0	- 5 33 25 AGL 1.8 .3 -1.3 .2 -3.3 .2 -3.2 .3 .4 .5 .5 .5 .5 .5 .5 .3 .8 .6 .5 .5 .5 .5 .5 .5 .5 .3 .8 .6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
950) Dec(1950) Ref m(4) m(11) m(20) m(27)	.2 +36 57 39 SAQ5 .3 -1.3 .4 -1.4 C .6., .5 .5 .5 .2 .6 .2 -3.5 .3 .7 -39 50 39 SPC .2 .3 .2 -2.3 .2 -3.0 .3	39 41 5 SPC 6 . 2 - 2.8 . 2 - 3.3 . 3 . 3 . 3 . 3 . 3 . 3 . 3 . 3 .	0 -21 3 30 AGL 1.5 .3	3.2 - 8 35 26 AGL 1.8 .4 -1.8 .2 -3.7 .2 -5.4 .3 AG 6.6 -19 18 34 5AO .7 .37 .2 -3.7 .2 -5.3 .3 AS 8.3 - 7 26 0 SPC	6.9 - 8 33 5 SPC8 .2 -1.9 .2 -3.0 .3 K3 3.6 -32 18 37 SPC8 .2 -1.9 .2 -3.0 .3 KC8 .2 -1.9 .2 -3.0 .3 MC8 .3 .3 .3 MC8 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	7 44 29 5AU 11.1 .3 .2 -4.0 .2 -5.9 .3 7 12 85 16 5PC -5.5 .2 -2.4 .2 -3.3 .3 7 45 23 5PC -1.5 .2 -2.4 .2 -3.8 .3 6 42 31 AGL -1.2 .4 -3.3 .2 -4.3 .3 N5 19 56 24 IRC 1.3 .4 N5	7 23 58 AGL -1.3 .2 -3.3 .2 -5.1 .3 7 38 47 EIC 1.0 .3 -1.2 .2 -3.3 .2 -5.4 .3 C5,5 2 41 50 EIC .4 .3 -5 .4 .8 .5 .4 .8 .5 .4 .9 .2 -5.5 .3 M 6.5 6 20 42 AGL -4 .3 -3.5 .2 -4.9 .2 -5.5 .3 M 6.5 .1 .2 .4 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	3.0 - 6 54 54 IRC 1.3 .3 - 9 .2 - 3.2 .3 K0 4.7 +38 44 10 5A0 0.0 C 0.0 C 0.0 C A0 V A0 V 2.9 - 6 9 6 5PC - 4 .2 - 3.1 .2 - 4 .3 .3 A0 V 4.9 - 6 50 37 WYO - 2.9 .2 - 6.0 .2 - 7.2 .3 K0	5 33 25 AGL 1.8 .3 -1.3 .2 -3.3 .2 5.2 .3 .8 6 22 6 SPC
0) Dec(1950) Ref m(4) m(11) m(20) m(27)	30 36.2 +36 57 39 SAO5 .3 -1.3 .4 -1.4 C 66, 30 49.5 - 5 .2 16 SPC -1.3 .2 -2.6 .2 -3.5 .3 30 55.7 -39 50 39 SPC -2.3 .2 -2.3 .2 -3.0 .3	.2 -39 41 5 SPC -10 2 -2.8 .2 -3.3 .3 .3 .3 .4 .9 .9 15 AGL 2.7 C -1.9 .2 -3.3 .2 -4.4 .3 M6. 0.6 -8 10 50 SPC -1.0 .2 -2.7 .2 -4.6 .3 .3 .0 +14 12 6 AGL .4 .3 -1.9 .2 -4.4 .2 -5.4 .3 .3 -7 21 54 AGL -1.3 .3 -1.4 .2 -2.5 .2 -2.4 .3 M6	2.0 -21 3 30 AGL 1.5 .39 .2 -2.8 .2 5.7 .3 6.8 - 7 57 56 AGL -1.0 .2 -3.6 .2 -5.2 .3 8.8 + 8 46 34 AGL -1.1 .2 -2.7 .2 -4.6 .3 1.0 - 5 12 AG	3.2 - 8 35 26 AGL 1.8 .4 -1.8 .2 -3.7 .2 -5.4 .3 26.6 -19 18 34 SAO .7 .37 .2 -3.7 .2 -5.3 .3 M5	2 29.1 - 8 16 51 SAO .8 .3 -1.3 .2 -3.7 .3 K3 2 46.9 - 8 33 5 SPC 8 .2 -1.9 .2 -3.0 .3 3 13.6 -32 18 37 SPC 8 .2 -8 .2 -3.6 .2 -4.3 .3 MC 8 .4 -2.9 .2 -3.6 .2 -4.3 .3 MC	1.2 -7 12 30 AGL -1.3 .2 -4.0 .2 -5.9 .3 1.2 -7 12 30 AGL -5.2 -2.4 .2 -3.3 .3 3.9 - 6 55 16 50 C -5.2 -2.4 .2 -3.3 .3 4.7 - 7 45 23 SPC -1.7 .2 -3.8 .3 6.3 - 6 42 31 AGL -1.2 .4 -3.3 .2 -4.3 .3 7.0 -19 56 24 IRC 1.3 .4 M5	7.8 - 7 23 58 AGL -1.3 .2 -3.3 .2 -5.1 .3 1.3 - 7 38 47 EIC 1.0 .3 -1.2 .2 -3.3 .2 -5.4 .3 C5,5 4.1 - 2 41 50 EIC .4 .35 .4 .8 .2 -5.4 .8 M6.5 2.3 - 5 26 34 WYO 2.4 C -2.6 .2 -4.9 .2 -5.5 .3 M 6.6 - 6 20 42 AGL -1.2 .4 .3 .3 .3 .3 MOF	5 13.0 - 6 54 54 18C 1.3 .39 .23 .2 .3 K0 5 14.7 +38 44 10 5AO 0.0 C 0.0 C 0.0 C 0.0 C AO V 5 22.9 - 6 9 6 SPC4 .2 -3.1 .2 -4.3 .3 5 34.9 - 6 50 37 WYO -2.9 .2 -6.0 .2 -7.2 .3 K0	6.6 - 5 33 25 AGL 1.8 .3 -1.3 .2 -3.3 .2 7.5 - 6 22 6 SPC -1.7 .2 -2.6 .2 -3.2 .3 M6.5 3.1 -13 49 20 SAQ -1.3 .3 -3.1 .2 -2.8 .2 -3.0 .3 M6.5 3.1 -13 49 20 SAQ 1.4 .3 -4 .5

Table Of Observations

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-	24.7 31.3 26.6 357.8 26.5 26.5 26.7 26.2 26.2	22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	28 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	239.52 238.53 239.53 230.63 230.63 230.63	300.2 200.2 200.2 200.2 200.2 300.3 300.3
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Comments	ш	ù	E	HFE 56	E0 SCT HFE S7 E0
80E6Z	GC 25524 V2378 SGR 3,511 AM CRA V2380 SGR DD 16943	DD 5003 1,266 SY LYR 2,176 V3879 SGR SVS 4316	F1R 23 DO 5046 KX HER HK LYR DO 5053	SVS 101757 V3952 SGR GC 25677 G29.9-0.0	GC 25721 BET SCT R SCT MULTIPLE W 43
£	7007	7023		7045	7064 7063 7066
TMSS	-10449 -20507 -10450 -304256 -10452	30340	367 10373 40325 369 10374	370 -20514 -20515	40328 30342 376 -10461 377 379
AFGL	2222 2222 2223 2223 5520 5521 2226 2226 2227	2222 2222 2223 22233 22233 22233 22233 22233 22233	5523 22338 25234 25234 5524 5524 25241 5527	52858 5224 5528 5529 5530 5231 52885 5244 5532	2246 5533 2244 2248 2249 5296S 2252 2251 5534
Type					H
Spec Ty	X X X X X X X X X X X X X X X X X X X	M M M M M M M M M M M M M M M M M M M	M3 M8 C7,4 M2 RED M8 III	M3 III M9 M4.5 G	M7E 11 K3 1111 G4 11A K0 1AB M6 1111
Spec	- 8 4 X X X X X X X X X X X X X X X X X X X	E. E	9 .3 M3 3 M8 7 .3 M8 II 4	.3 M9 .3 M9 .3 M9.5	7 .3 M7E I 6 .3 K4 III 6 .3 K0 IA 6 .3 M 1 .3 M6 III 2 .3 M6 III
	4 7 2 N M M M M M M M M M M M M M M M M M M	13.77 3 MA 13.6 3 C E 13.2 1 3 M M M M M M M M M M M M M M M M M M	-3.9.3 M3 -3.1.3 M3 -4.2.3 C7.4 -2.7.3 M2 RE -5.4.3	-3.5 .3 M3 II -3.8 .3 -3 -2 -2.2 .3 M9 -5 -4.6 .3	-3.7.3 M7E I -4.6.3 K9 II -2.6.3 M IA -7.1.3 M6 II -4.1.3 M6 II
Spec	4. TANE A A A A A A A A A A A A A A A A A A	3. 2. 3. 3. 3. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4.	.9 .3 M3 .1 .3 M8 .2 .3 C7 .4 .3 M8 II	3.5 .3 M3 II 3.8 .3 3.3 .3 .3 2.2 .3 M9 6.6 .3 M4.5	7. 3 M7E I 6. 3 K3 III 66. 3 K0 IA 1. 1. 3 M6 III 4. 3 M6 III
11) m(20) m(27) Spec	7.4 .4	3 .2 -3.6 .2 -3.7 .3 M4 .2 .2 -1.5 .2 M7 .5 .4 -3.8 .4 -3.6 .3 C .2 .2 -3.6 .3 -3.6 .3 C .3 .2 -3.6 .3 -3.1 .3 M3 .8 .3 -1.1 .2 -3.1 .3 M9	.0 .2 -2.8 .2 -3.9 .3 M3 .6 .2 -2.8 .2 -4.1 .3 M3 .8 .4 -2.8 .2 -4.2 .3 M8 .0 .4 -1.6 .2 -2.7 .3 M2 RE .5 .2 -1.5 .2 -5.4 .3 .8 .1 .4 .3 .2 -4.3 .2 -5.4 .3 .8 .1 .5 .2 -4.3 .2 -5.4 .3 .8 .1 .5 .2 -4.3 .2 -5.4 .3	. 4 . 22.3 . 23.5 . 3 M3 II . 5 . 22.4 . 23.8 . 3 . 4 . 22.0 . 23.8 . 3 . 5 . 21.8 . 23.3 . 3 . 7 . 21.8 . 22.2 . 3 M9 . 0 . 25.3 . 26.6 . 3 M4.5 . 5 . 25.3 . 26.6 . 3	.0 .4 M7E I .9 .2 -2.6 .2 -3.7 .3 K3 II .9 .2 -3.4 .2 -4.6 .3 K0 IA .4 .2 -6.3 .2 -7.1 .3 M6 II .0 .2 -3.6 .2 -4.1 .3 M6 II
1) m(20) m(27) Spec	7 . 4	3 .2 -3.6 .2 -3.7 .3 M4 2 .2 -1.5 .2 M6 5 .4 -3.8 .4 CE 3 .2 -3.6 .3 CE 2 .2 -3.1 .3 M9 8 .3 -1.1 .2 -3.1 .3 M9	6 .2 -2.8 .2 -3.9 .3 M3 6 .2 -2.3 .2 -4.1 .3 M3 6 .2 -2.3 .2 -3.1 .3 M8 8 .4 -2.8 .2 -4.2 .3 C7.4 6 .3 -1.6 .2 -2.7 .3 M2 RE 5 .2 -1.5 .2 -5.4 .3 M8 II	5 . 2 . 2 . 3 . 2 . 3 . 5 . 3 M3 II 5 . 2 . 2 . 4 . 2 . 3 . 4 . 3 . 3 . 3 4 . 2 . 2 . 2 . 4 . 2 . 3 . 8 . 3 5 . 2 . 1 . 8 . 2 . 3 . 3 . 3 7 . 2 . 2 . 4 . 2 . 2 . 2 . 3 M9 6 . 2 . 5 . 3 . 2 . 6 6 . 3 M4 . 5 5 . 2 . 2 . 8 . 3 . 3 . 3 7 . 2 . 2 . 4 . 2 . 2 . 2 . 3 M9 8 . 2 . 5 . 3 . 2 . 6 6 . 3 M4 . 5 8 . 2 . 5 . 3 . 4 . 6 . 3	9 .2 -2.6 .2 -3.7 .3 K3 II 6 .2 -1.9 .2 -4.6 .3 K4 II 6 .2 -3.4 .2 -4.6 .3 K0 IA 7 .2 -6.3 .2 -7.1 .3 M6 II 9 .2 -3.6 .2 -4.1 .3 M6 II
11) m(20) m(27) Spec	7.1.7.4.1.6.2.2.1.6.2.2.1.1.9.2.1.3.3.2.2.8.2.2.1.3.3.2.2.1.3.3.2.2.1.3.3.2.2.1.3.3.3.3	-2.3.2 -3.6.2 -3.7.3 M4 -1.1.2 2 -1.5.2 M7 -3.5.4 -3.8.4 C -1.2.2 -3.6.3 C -1.2.2 -1.1.2 2 -3.1.3 -1.8.3 -1.1.2 -3.2.3 M9	-1.0 .2 -2.8 .2 -3.9 .3	4 .2 -2.3 .2 -3.5 .3 M3 II 4 .4 -3.3 .4 -3.3 .4 5 .2 -2.0 .2 -3.8 .3 5 .2 -1.8 .2 -2.2 .3 M9 -1.7 .2 -2.4 .2 -2.2 .3 M9 -1.0 .2 -5.3 .2 -6.6 .3 M4.5 -1.5 .2 -5.3 .2 -6.6 .3	-1.0 .4
) Ref m(4) m(11) m(20) m(27) Spec	3 SAO 1.4 .3 K4 7 JCG 1.7 C -1.7 .4 SSPC -1.6 .2 N7 8 SPC -1.3 .2 -1.6 .2 SPC -1.0 .2 -3.3 .2 SPC -1.0 .2 -1.8 .2 N3 7 SPC -1.0 .2 -1.8 .2 N3 7 SPC -1.1 .2 -2.8 .2 -4.1 .3 N6 2 SAO 1.2 .39 .4 N6 2 IRC -1.9 .2 N	O IRC . 7 .3 -2.3 .2 -3.6 .2 -3.7 .3 M4 IRC 1.5 .4 -1.1 .2	A AGL -1.0 .2 -2.8 .2 -3.9 .3 A AGL -6 .2 -2.8 .2 -4.1 .3 M3 5 IRC -6 .2 -2.3 .2 -3.1 .3 M8 4 SPC -1.0 .4 -2.8 .2 -4.2 .3 C7,4 1 SPC -1.0 .4 -1.6 .2 -2.7 .3 M2 RE 5 SPC -1.5 .2 -1.5 .2 -1.5 .2 1 AGL	6 IRC 1.2 .34 .2 -2.3 .2 -3.5 .3 M3 II 5 SPC5 .2 -2.4 .2 -3.3 .4 7 SPC4 .2 -2.0 .2 -3.8 .3 9 SPC5 .2 -2.0 .2 -3.8 .3 5 .2 -1.8 .2 -3.3 .3 6 IRC 1.6 .4 -1.7 .2 -2.4 .2 -2.2 .3 M9 7 SAO .1 .3 -1.0 .2 -5.3 .2 -6.6 .3 M4.5 9 SPC -1.5 .2 -5.8 .2 -6.6 .3 M4.5	5 SPC
) Ref m(4) m(11) m(20) m(27) Spec	50 13 SAO 1.4 .3 K4 36 23 SPC -1.7 .4 -1.6 .2 M7 45 42 IRC 8 .3 -2.0 .2 -3.3 .2 S 53 38 SPC -1.0 .2 -1.8 .2 M3 53 37 SPC -1.0 .2 -1.8 .2 M3 64 32 IRC -1.3 .2 -2.8 .2 -4.1 .3 M6 77 2 SAO 1.2 .3 -9 .4 M6 74 42 IRC -1.9 .3 -9 .4 M6	23 30 IRC	15 10 SPC -1.0 .2 -2.8 .2 -3.9 .3 M3 5 50 SPC -6 .2 -2.8 .2 -4.1 .3 M3 20 36 IRC 1.3 .3 -8 .4 -2.8 .2 -4.2 .3 M8 5 51 SPC 5 61 SPC 6 7.4 7 7 8 IRC 7 8 IRC 7 8 IRC 7 8 IRC 7 9 3 -1.5 .2 -1.5 .2 -5.4 .3 IRC 7 9 8 IRC 7 9 8 IRC 7 9 8 IRC 7 9 8 IRC 7 9 9 IRC 7 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	51 6 IRC 1.2 .34 .2 -2.3 .2 -3.5 .3 M3 II 3 55 SPC	34 54 1RC 1.1 .3 -1.0 .4 31 5 SPC
Dec(1950) Ref m(4) m(11) m(20) m(27) Spec	7 - 7 50 13 SAG 1.4 .3 K4 9 - 0 21 27 JCG 1.7 C -1.7 .4 S	0 - 4 23 30 IRC	8 - 4 15 10 SPC 2 - 4 5 50 SPC 1 3 3 - 10 3 2 - 2.8 .2 - 3.9 .3 M3 2 - 4 5 50 SPC 1 3 3 - 8 4 4 - 2.8 .2 - 3.1 .3 M8 2 - 4 5 50 SPC 1 3 51 54 SPC 1 3 5 5 1 SPC 1 3 5 2 6 15 SPC 2 - 5 26 15 SPC 1 3 - 2 4 .3 - 3.1 .4 M8 II	0 - 3 51 6 1RC 1.2 .34 .2 -2.3 .2 -3.5 .3 M3 II 0 +32 38 24 AGL	0 +43 34 54 IRC 1.1 .3 -1.0 .4 3 - 2 31 5 SPC
) Ref m(4) m(11) m(20) m(27) Spec	L 7 50 13 SAO 1.4 .3 K4 -18 36 23 SPC	- 4 23 30 IRC	- 4 15 10 SPC - 1.0 .2 -2.8 .2 -3.9 .3 M3	- 3 51 6 1RC 1.2 .34 .2 -2.3 .2 -3.5 .3 M3 II - 3 3 55 SPC5 .2 -2.4 .2 -2.8 .3 .4 - 4 4 29 SPC4 .2 -2.0 .2 -3.8 .3 - 4 4 29 SPC5 .2 -2.0 .2 -3.8 .3 - 5 .2 -2.4 .2 -3.3 .3 - 5 .2 -2.4 .2 -3.8 .3 - 5 .2 -2.3 .2 -3.3 .3 - 5 .2 -1.8 .2 -2.2 .3 M9 - 19 39 37 SAO .1 .3 -1.0 .2 -2.4 .2 -2.2 .3 M9 - 2 42 48 CIO 1.0 .3 -1.9 .2 -5.3 .2 -6.6 .3 - 3 51 59 SPC1 5 .2 -2.8 .2 -4.6 .3	+43 34 54 IRC 1.1 .3 -1.0 .4 -2 31 5 SPC -2 3.7 .3 -3 2.7 .3 -3 2.7 .3 -4 38 11 SAO 1.5 .3 -2 26 47 AGL -2 5 45 37 SAO 1.2 .3 -2 6 73 -2 6 73 -3 7 .3 -3 8 7 -3 8 8 7 -3 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8

Table Of Observations

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-	30.1 26.5 31.4 41.2 25.8 77.0 32.8 6.7	44 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	60 333.88 42.88 33.74 34.75 35.99 37.75 37.75	23.3.5 2.3.5 2.3.5 2.3.5 2.3.5 3.5 3.5 3.5 5.5 5.5 5.5 5.5 5.5 5.5	35.1 39.7 39.7 39.7 4.5 5.5 37.5 5.5 5.5 5.5 6.5 6.5 7.5 6.5 7.5 6.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7
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Ŧ	7089		7139	7157	
TMSS	381 -10467 50284	385 -10471 -20524	30345 389 40329 10384 392 40331	39334 40334 30347 -20530	402 -30398 10388 -20532
AFGL	5535 2256 2258 2258 2259 2261 2261 5536 5536	2266 22667 22667 22688 2240 2241 2241	2273 2274 2275 2275 2276 53215 5543 2278	5545 2280 2280 2284 2285 5546 4241 2281 2327 2287	5547 2288 2290 2290 2291 2293 2290 5593 668 668 668 668 668 668 668 668 668 66
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Spec	≥ ∩ ≥ ∩ ≥ 0 ≥ 2	M M M M M M M M M M M M M M M M M M M	M	M M M M M M M M M M M M M M M M M M M	M2 RED M9 M9 N5 C5.3 M2 IA
m(27) Spec	2.2.3 2.2.3 3.00 6.30 6.60 6.60 7.7.3 7.7.3 7.7.3	44 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -			-4.4 .3 M2 II -3.7 .3 M9 -2.9 .3 M2 II
m(27)	2. 2. 2. 3. M. C.	2 422223 4 2 41 4 2 48 6 2 130 6 6 6 6 6	.2 .3 MS C -3.4 .3 MS C -3.9 .3 MS	2	22 - 4.4 .3 M222373 M8
	2.4 4 2.6 8.6 4 2.6 8.6 6 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	4 6 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	-3.9 .3 MS	2. 6. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8.	2 -4.4 .3 M2 2 -3.7 .3 M9 2 -2.9 .3 M2 2 -3.8 .3 M2
m(27)	3.4 .2 .2 .2 8 .3 C .3 .2 .2 .2 .2 .8 .3 C .6 .3 M6 .3 .2 .2 .2 .2 .2 .3 .2 .2 .2 .3 .3 .2 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2	2.2.2 1.6.2 MS 1.6.2 MS 2.4.2 -3.4.3 MS 2.3.2 -3.9.3 MS	1.7.2 1.6.2 4.4.4 2.5.4 2.7.2 14.5.3 M5 7.7.2 14.5.3 M9 7.7.2 14.5.3	3.3 .2 -4.4 .3 M2 4.5 .4 M 3.2 .2 -3.7 .3 M9 N5 2.7 .2 -2.9 .3 M2 3.3 .2 -3.8 .3 M2
) m(11) m(20) m(27)	C -1.1 .2 -3.4 .2 C M C 1.7 .2 -2.5 .2 .2 .2 M C 9 .3 -2.4 .5 C 9 .2 -2.4 .5 C 9 .3 -1.1 .4 -3.2 .2 -4.7 .3 M M M M M M M M M M M M M M M M M M	.3 .2 .4 .1.2 .5 .4 .1.3 .2 .1.4 .1.3 .2 .1.3 .2 .1.3 .2 .1.3 .2 .1.3 .2 .1.3 .2 .1.3 .2 .1.3 .2 .1.3 .2 .1.3 .2 .1.3 .2 .1.3 .2 .1.3 .2 .1.3 .2 .1.3 .1.3	.3 -1.6 .2 -2.2 .2 .8 .8 .8 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9	.3 -1.0 .2 -1.7 .2 M5 .3 -1.4 .2 -1.6 .2 M5 .3 -2.5 .3 -2.5 .4 .4 .4 .3 -1.0 .4 .2 -2.7 .2 -4.5 .3 M9 .3 -1.4 .2 -2.7 .2 -4.5 .3 M9 .3 -1.4 .2 -2.7 .2 -4.5 .3 M9	.3 -1.0 .2 -2.0 .2 M2 .3 -2.6 .3 -4.5 .4 M .3 -2.1 .4 -3.2 .2 -3.7 .3 M9 .3 -2.1 .4 -3.2 .2 -3.7 .3 M9 .3 -2.1 .4 -5.7 .2 -2.9 .3 M2 .3 -1.1 .2 -3.3 .2 -3.8 .3 M2
(11) B(20) B(27)	-1.1.2 -3.4.2 -2.8.3 CM -1.9.3 -2.4.5 -4.6.3 M6 -1.9.2 -2.4.5 -4.6.3 M6 -1.1.4 -3.2.2 -4.7.3 M7 -1.5.2 -2.7.2 -3.8.3	-1.2 .4 -2.0 .2 -4.1 .3 -1.3 .2 -1.4 .2 -2.9 .3 -2.7 .2 -5.2 .2 -4.1 .3 -2.7 .2 -5.2 .2 -4.1 .3 -2.7 .2 -5.2 .2 -6.5 .3	-1.6 .2 -2.2 .2 MS -1.2 .2 -1.6 .2 M3 -1.5 .2 -2.4 .2 -3.4 .3 M5 -1.7 .3 -1.8 C M5 -1.8 .5 -2.3 .2 -3.9 .3 M5	1.0 .2 -1.7 .2 MA -1.4 .2 -1.6 .2 M5 -2.5 .3 -2.5 .4 M5 -1.0 .4 .2 -2.7 .2 -4.5 .3 M9 -1.4 .2 M8	-1.0 .2 -3.3 .2 -4.4 .3 M2 -2.6 .3 -4.5 .4 -3 M9 -2.1 .4 -3.2 .2 -3.7 .3 M9 -2.1 .4 -3.7 .3 M9 -2.1 .4 -3.7 .3 M9 -2.1 .4 -3.7 .3 M2 -2.1 .2 -2.7 .2 -2.9 .3 M2 -1.1 .2 -3.3 .2 -3.8 .3 M2
(1950) Ref m(4) m(11) m(20) m(27)	53 55 SPC 3.4 C -1.1 .2 -3.4 .2	9 30 JCG 1.6 .4 -1.2 .4 2.0 .2 -4.1 .3 24 11 SPC 2.9 C 1.2 .2 -2.0 .2 -4.1 .3 36 18 AGL 2.9 C 1.2 C -2.5 .2 -2.9 .3 32 30 IRC 5.3 -1.3 .2 -1.4 .2 5.2 SPC -2.7 .2 -5.2 .2 -6.5 .3 46 43 SPC 2.0 .2 -2.2 -1.9 .2 -3.1 .3	34 6 1RC 1.8 .3 -1.6 .2 -2.2 .2 .2 .8 MS 55 54 SAO .2 .3 -1.6 .2 -1.6 .2 MS 35 2.3 SAO .1 .2 -1.2 .2 -1.6 .2 MS 34 7 SAO .1 .2 -1.2 .2 -1.6 .2 MS 37 43 SPC 5 .2 -2.4 .2 -3.4 .3 MS 50 3 SAO -1.5 .3 -1.8 .5 -1.8 .3 M4 27 5.2 SAO 1.4 .3 -1.8 .5 -2.3 .2 -3.9 .3 46 38 SPC -2.3 .2 -2.3 .2 -3.9 .3	17 51 SPC	32 45 SPC7 .2 -3.3 .2 -4.4 .3 M2 35 47 EIC .9 .3 -1.0 .2 -2.0 .2 M2 38 50 KLM .5 .3 -2.6 .3 -4.5 .4 M
950) Ref m(4) m(11) m(20) m(27)	3 55 SPC 3.4 C -1.1 .2 -3.4 .2 M 6 32 KLM 2.5 C -1.7 .2 -2.5 .2 -2.8 .3 C 6 34 LKV 2.0 C -1.9 .3 -2.4 .5 -4.6 .3 M6 7 27 SAO -1 .2 -9 .2 -3.2 .2 -4.6 .3 M6 7 27 SAO -5 .3 -1.1 .4 -3.2 .2 -4.7 .3 M7 6 29 SPC 8 5 .3 -1.1 .4 -3.2 .2 -4.7 .3 M7 8 59 SPC 9 4 SPC -5 .2 .2 .3 8 .3 .3 .3 .4 SPC -5 .2 .2 .3 8 .3 .3 .3 .3 .4 SPC -6 .5 .3 .4 SPC -6 .5 .3 .4 SPC -6 .5 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	9 30 JCG 1.6 .4 -1.2 .4 11 SPC 2.9 C 1.2 .4 -2.0 .2 -4.1 .3 4 11 SPC 2.9 C 1.2 C -2.5 .2 -2.9 .3 5 2.2 SPC 2.5 .3 -1.3 .2 -1.4 .2 -2.7 .2 -5.2 .2 -6.5 .3 6 43 SPC 2.5 .2 -2 .2 -1.9 .2 -2.7 .3 -2.7 .2 -5.2 .2 -6.5 .3 6 43 SPC 2.5 .2 -2 .2 -1.9 .2 -3.1 .3	4 5 IRC 1.8 .3 -1.6 .2 -2.2 .2 MS 5 54 SAO .2 .3 -1.6 .2 -1.6 .2 MS 5 23 SAO .1 .2 -1.2 .2 -1.6 .2 MS 6 7 SAO .1 .2 -1.1 .5 MS 7 3 SPC .2 3 .4 .5 .2 .2 .4 .2 -3.4 .3 MS 7 52 SAO .1.5 .3 -1.7 .3 -1.8 C MS 7 52 SAO .1.4 .3 -1.8 .5 -2.3 .2 -3.9 .3 MS 8 SPC .3 -1.8 .5 -2.3 .2 -3.9 .3 MS	2 54 IRC 1.2 .3 -1.0 .2 -1.7 .2 K7 5 29 SAO .4 .3 -1.7 .4 -4.4 .4 M5 1 6 ACL .1.7 .2 .3 -2.5 .4 .4 .4 M5 1 6 ACL .1.7 .3 .3 -2.5 .3 -2.5 .4 M5 1 6 ACL .1.7 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4	2 45 SPC

Table Of Observations

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-	54.3 37.3 359.9 22.6 71.0 12.0 29.0 29.0 35.2	35.5 38.7 54.6 41.7 88.1 52.7 13.7 358.7	74.7 29.3 22.1 52.6 52.6 62.1 62.1 70.4 40.4	0.1-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4	21.5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
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£	7183 7201 7193		7217 7220 7238	7234 7243	
TMSS	20382 -10482 40336 -10483	407 10399 60260 20384 -20534 -30436E 10400	-20536 -10486 30354 30355 -40284E	-30401 10407 10407 10407 10408 10408 -20540 40338	-20543 -30404 70148 50289
AFGL	2297 2298 5550 2300 2301 5551 2302 2303 2304	53315 4242 23065 2305 4243 2308 2309 5553 2312	5333 2315 2316 2316 2317 5554 5554 2320	2323 2324 2326 2326 2332 2333 2333 2333	2335 5356 2337 5557 2338 2343 2343 2346
Spec Type	M4 IIIAB F0E S6.4E M4 IIIA K1 III	M W W W W W W W W W W W W W W W W W W W	G8 G C5,4 C C C M3 IIIA8	K1 III M6.5E M6EP II M8E III M6 M9	M3 M9 M5 G M5 E III
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m(20)	6.6.1 6.4.6 7.0.7.4 7.0.7.4 7.0.7.4 7.0.7.4 7.0.7.4	6.2.2.2.2.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.	2. 2. 2. 3. 4. 5.	24.0 C C C C C C C C C C C C C C C C C C C	2. 2. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4.
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Ĩ	7310	7314		7342	7405
TMSS	30363 70150 -10497 20390 -20548 30364	20392 20392 40341 20393 10415	-20554 423 -20555 20397 20398 -10502	-20558 60265 20399 -10511	50294 80036 20404 40347 70156 10420 20407 50295
AFGL	4244 2348 2349 53528 5559 4245 2351 2350 5560	2353 2355 2357 4246 2358 2359 2360 2361 2362	2363 2363 2365 2367 2366 2368 2368 2369 2370	2313 2314 2314 2316 2318 2319 2380 2381	2383 2384 53775 2389 2390 2390 2390 2390
Spec Type	M6 G9 III S3.9E M9 G0 EP S4.5E M1 IIIAB K7 III	M4.5E M7 K0 II C4.4 K5 K6E M6EP M G9 III	C6 SE M5E M6 M6 M7 M9 III	APEP M IIIAB MG IIIAB M3	M7 IIIAB C7,2 M9 M6 M7 F8 IA C5-9E M8 M1 IIIB C4,5
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Names	SVS 101849 V374 AQL 36 AQL SHARP. 82 DH55.0+007 DO 37347 BET CYG AF CYG	V1293 AQL V1137 AQL EP VUL V450 AQL AQ SGR MUU AQL V1129 CYG DQ 37447 BD+30 3639	GC 27069 R CYG DO 37579 RI AGL SVS 4755 BG CYG	DD 6039 BET SGE TT CYG DO 37608 V391 CYG V1351 CYG	IN CYG SVS 101884 V973 CYG DQ 18133 DZ AQL GAM AQL
£	7412 7147 7147	7429		7498 7492 7509	7520 7523 7523
TMSS	437 438 439 50296 30370 50297	443 20413 10428 -20568 10430 30374 50300	30376 50301 70159 10433 30379 40355	448 20427 30382 40356 50304 60269	451 30385 30388 40362 30391 10439
AFGL	2398 2400 2400 2400 2400 2400 2400 260 260 260 260 260 260	2410 2413 2414 2415 2415 2416 2417 2417	25 4 4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2430 24334 24334 2433 2433 2433 2433 243	2440 2443 5566 2445 2446 2446 2450 5456 2452
Spec Type	KS CE M1 111AB M6.5 M6 G	MS III S8,7 MS III C7 IIIB C C MS IIIAS	83.9E MS G M7E III M10 III M8E III C3	M6 G9 IIIAP C5.4 M2.5 G M8 IIIA	M6.5 III M M4 M3 IIIAP M7 II
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130 - 30 - 125 - 22 - 22 - 23 - 23 - 23 - 23 - 23 -
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60 60 1 1 4 60 4 60
V3872 SGR PLAN. NEB
V485 CYG 62 SGR NGC 6857 V718 CYG 64 DRA 69 DRA
7650 7676 7686
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59 8.0 +33 2 0 AG 59 20.0 +33 47 19 SA 59 24.8 +40 47 18 UC 59 36.2 -40 39 16 SP 59 46.0 -40 27 33 SP 59 55.0 +33 22 24 IR 0 55.0 +64 40 51 SA 1 2.4 +76 20 34 SA
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200000000000000000000000000000000000000	(1950) Dec(1950) Ref m(4) m(1	5.9 -32 59 2 SPC 8.0 +30 19 54 IRC 1.1 .3 -1.8 . 5.9 +67 43 51 SAQ 1.4 .39 . 6.6 +36 40 26 SAQ .3 .39 . 7.0 +40 18 6 IRC 1.1 .3 .4 .9 . 3.0 +20 30 0 IRC 1.0 .3 .4 .9 . 5.1 -44 1 11 SPC 1.0 .39 . 8.4 +15 21 23 SAQ 1.1 .49 . 6.7 -40 21 25 SPC6 .	5.4 +51 41 43 5A0 1.6 .3 -1.0 .6 .1.9 -27 22 9 5A0 -1.7 .3 -2.5 .2 6.7 -40 40 51 5PC -1.7 .3 -2.5 .2 2.0 +66 19 12 AGL -1.4 .2 1.0 +26 51 18 AGL -1.4 .2 1.6 .3 -1.6 .4 5.0 + 5 54 27 EIC 1.1 .3 -9 .4 c6.7 -44 14 5PC 1.6 .3 -9 .4 c7 1.0 +56 50 24 IRC 1.6 .3 -4 C	5.0 +31 16 52 UCG 3 3 -2.2 3 -4.3 - 1.46 36 SAO 3 3 3 -2.2 3 -4.3 - 1.46 36 SAO 3 3 3 3 -4.7 43 25 CIO 1.2 4 4.7 43 25 CIO 1.2 4 4.6 30 IRC 1.2 41.1 C 4.0 435 58 6 IRC 1.1 3 1.1 C 4.0 435 58 6 IRC 1.1 3 1.1 C 4.0 435 58 6 IRC 1.1 3 1.1 C 4.0 435 58 6 IRC 1.1 4.4 4.5 6.2 .	8.9 - 1 9 38 SAD 1.3 .3 -1.2 .3 -3. 4.5 +38 34 36 SAD .1 .3 -1.2 .3 -3. 1.0 - 0 9 29 EIC 1.8 .49 .4 -3. 3.3 +46 35 20 SAD .2 .36 .4 -3. 4.8 -44 19 52 SPC .2 .36 .4 -3. 9.9 - 4 43 50 SAD 1.3 .3 -1.2 .2 -3. 6.0 +26 16 48 AGL .8 .3 -1.0 .4	8.1 -44 12 39 SPC -1.5 .2 -3. 7.9 -44 5 4! SPC -1.9 .2 -3. 0.5 +23 2! 17 SAO 1.1 .3 -1.9 .2 -3. 7.2 + 7 30 58 SAO .5 .39 .4 6.2 +30 55 4 CIO 1.4 .39 .4 5.0 -21 28 30 IRC 0.0 .39 .2 6.4 +40 13 34 SAO .9 .39 .2 8.1 +74 58 52 SPC .7 .3 -9 .2 8.0 +33 56 2 SAO .7 .3 -9 .2

Table Of Observations

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-	27.8 72.9 72.9 36.2 36.2 78.4 78.4 84.2 77.5	78.9 75.3 75.8 76.2 102.4 77.8 58.8 78.2	4 0 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
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Comments	· W			
Names	AE CAP Y TEL AU CYG DO 38292 U CYG BET CAP	LKHA 225 DD 18895 B1 CYG BC CYG V405 CYG AC DRA DD 18920 GC 28340 GM CYG	DD 6708 V365 CYG V865 AQL 39 CYG T MIC UU DRA V421 CYG V1324 CYG V372 CYG SHARP. 106 U MIC	RS RW CT TZ AD ME2 DO 19
¥	7776	7804 7805 7796	7806	7851
TMSS	-20586 30426 70165 50324 -10537	40406 40409 40410 70166 20464 60286	50326 474 60288 30430 30430 -10539 40418 60291 60291	
AFGL	2552 2554 2550 2550 2551 2551 2554 2555 2555	2557 2558 2559 2560 2561 2564 2563 2566 2566	25567 25568 25568 25570 25571 25575 25580 25580 25583 25583 25583 25583 25583	. സസ വസസസസസസസ
Spec Type	M4 M6-7E III M5 C8.2E K0+8 G	M3 IAB M4 IAB M4 IA M6 II M5 IIIA M7 K5 G	M4 M9 K3 III M3 IA M6 M8 G M6 M6 M6 M6 M6	M8 III M3 IA M7 M6 G S5.8 M2 IIAB
m(27)	-5.5	6. 9. 6. 9. 6. 5. 7. 5. 6. 5. 7.	8. 6. 6. 6. 6. 6. 7. 6.	0.4.v.
m(20)	40 W		7 6 23 2	999
E	111 41 6 121 41 6 123 0 6	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1 E 1
m(11) m	- 6	7 C C C C C C C C C C C C C C C C C C C	o o <td>1 1 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4</td>	1 1 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
(11)	4 8 9 9 7 4 1 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2.5.3.3 2.6.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.	4. 4. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.	. 1 . 3 . 2 . 4 . 4 . 4 . 7 . 7 . 3

Table Of Observations

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Names	V397 CYG BF CEP G79.3+ 0.3 MWC 349 W 72 DO 38576	DG 38592 VI CYG #12 70 AQL EU DEL SVS 5233	DO 38665 DO 38658 UPS CAP DR 2 V1202 CYG SVS 103015	ALF CYG V446 CYG 2 OBJECTS DG CYG ES DEL Y AGR SVS 8576 GC 28926 U DEL	52 CYG W AQR EPS CYG ETA CEP V1489 CYG 3 AQR O 38841 DO 38857
Ŧ	7866	7873	7900	7924 7944 7941	7942 7957 7951 7966
TMSS	40429 60292 40431 40432 40433	40434 -10541 483 40435 -20474 -30474E	-20592 50336 40439 487 50338	50337 40441 40442 20479 -10546 80041 60297 20481	30450 489 30451 60298 105448 20484 50341 60299
AFGL	2604 2604 2603 2603 2604 2604 2606 2607	2609 2610 2610 2611 2611 2611 2611 2618 2618	2620 2621 2623 2624 2624 2627 2626 2639 2631	2633 2633 2633 2633 2633 2644 2644 2641	2643 2645 2645 2645 2648 2652 2653 2653
Spec Type	M7 III M7 III M2 C C M3 M3 K4 IB	M4 M6 M9 IIIP	K5 M4 M2 G M2 G M5 I M6 C5,3E	M6 M7E III M1C III M6E III M6 M3 G M5-6 II	KO III MW III KO III KO III KO IV MM III MM III MM G III MM G M+A
m(27)	-5.8 .7 -7.3 .6 -2.9 .C	-1.6 .3	ပ ပ ဖ္ ဇ		7.2.7
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m(20)	1 1 1 1 1 6 6 6 6 7 7 6 7 8 7 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	2	4 44 66 6 6 6 4 6 7 6 6 4 6 7 6 6 7 6 6 7 6 7 6 7 6 7 6 7 6 7 6 7		
m(11) m(20		r	4 44 66 6 6 46 7 6 6 46 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		8. L. E. R. R. R.
11)	7. 8. 4. 6. 6. 7. 4. 6. 6. 4. 6. 6. 4. 6. 6. 7. 6. 6. 7. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.	2. 0. 2. 1. 2. 0. 2. 1. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	1.2.2.2 1.2.2.2 1.2.2.2 1.4.4.4 1.3.3.4 1.3.3.4 1.4.4.4 1.3.3.4 1.4.4 1.4.4 1.4.4 1.4.4 1.4.4 1.4.4 1.4.4 1.4.4 1.4.4 1.4.4 1.4.4	0. 1. 2. 2. 2. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4.	2. 6. 7. 3. 4. 4. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.

Table Of Observations

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-	71.7 67.5 46.8 74.7 53.2 88.9 359.0 36.5	0.44 668.4 72.4 742.3 742.3 743.3 768.3 7.3 87.7	72.6 116.5 80.2 86.3 79.6 70.5 70.5	88433 9400 9400 9400 9400 9400 9400 9400	6.000 6.000
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Names	SVS 5284 F1 VUL D0 7006 AM CYG D0 7021 GC 29061	SVS 102045 RZ CYG RX VUL IN VUL 32 VUL UX CYG SVS 102047 AZ CYG	X CEP IV ZW 67 DD 39142 DD 19908 HZ CEP DY VUL	GR CYG SVS 5337 XI CYG RV AQR V1549 CYG 24 CAP R2 CAP R3 CYG DD 7188 NGC 7027	DO 7199 DO 7197 T CEP RX AQR
£	7980	8008 8008	8062	8080 8089	8 113 8 115
TMSS	30454 20486 30485 10479 50345 -10550 -30437	80042 50347 20490 30460 30464 20493 40458 50351	40464 20501 40465	40466 30469 40468 40468 50354 120596 50359 5005	501 10487 -30483E 50362 50362 70168 -10558
AFGL	2657 2659 2659 2660 2660 2663 5590 2666	2668 2667 2672 2675 2676 2677 2682 2683	2686 2686 2688 2688 2689 2699 2694 2697	22698 27703 27703 27704 27704 27703	2717 2716 5591 5592 2720 2721 4272 2722 2723
Spec Type	MS M7 M6 III M5 II M7 II K5 III	K1 G M7 G M9E III M7 III M7 III M7 III M8 III M7 C2 MS	C1 MSE M3 IIAS M5 G M8 C	S M7 K4.5 IB C6,3E CE M1 G M6 III K4 IB	M6 M3 M9 M5 III M6.5E M5
m(27)			7.6 .6	ه. م	6.1. 6.0. 6.0. 6.0.
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(11)	7	1.1 .4	2.5 .3 -3.1. 2.6 .4 -6.0 . 1.4 .4 -2.7 . 1.5 .0 -2.5 . 1.3 .12 .	2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2	7.21.1.26 7.20.0.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2
4) m(11)	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	23 .3 .1 .1 .4 .2 .3 .3 .3 .3 .3 .4 .4 .3 .9 .	3 .4 .2.5 .3 .3.1		2.0 .3

Table Of Observations

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۵	8.0 -36.3 3.5 3.5 -27.7 -19.1 -25.8 -4.1 -4.1	2004 - 2006 2004 - 2006 2004 - 2006	0.001 0.001	2 1 2 1 1 1 2 8 8 8 8 8 8 9 8 9 8 9 8 9 8 9 9 9 9 9	4
-	98.7 34.9 441.7 94.5 85.3 85.3 62.3 95.7 355.3	100.0 92.6 98.2 100.9 96.0 96.7 70.0 26.3	71.9 87.0 112.7 112.7 73.2 114.2 27.0 83.7	63.2 99.7 107.2 73.1 108.4 74.4 64.3 68.3 100.8	338.88 86.23 86.23 86.33 86.34 87.03 83.64 83.64 83.64 83.64
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Comments					
Names	SVS 102073 29 CAP GC 29742 V702 CYG RU EQU DQ 39414 DQ 39414 T IND	GC 29843 DD 39440 CS CEP FZ CEP DD 39446 9 EQU 1 PEG GC 29923	SW PEG YY CYG YY CYG V MIC GH CEP V1070 CYG BM PEG DG 39572 ZET SA74 SET SW CEP	GC 30065 AX CEP SVS 102104 2 PEG UU PEG BET AQR	V1426 CYG DO 7488 AB CYG S CEP ISS 118
£	8128 8168 8149	8164 8163 8173 8172	8204	8224 8223 8225 8232	
TMSS	60305 -20598 -10559 50367 40477 10491 60309 -40313E	60311 60312 50372 60313 60315 60315 50374 10494 20505	20506 40478 -40314E 80045 40479 20507 80047 -20602 60317	60318 70170 20511 70171 20512 10498	50383 40485 504 30475 30476 80048 -30489E
AFGL	2725 2727 2727 2731 2737 2737 2739 2743	2746 2745 2747 2748 56055 2750 2752 2752 56085	2754 2755 5594 2757 2759 2756 2761 2764 2765	4274 2767 2768 2769 2771 2772 2775 4277	4278 2779 2781 2782 56285 2784 2785 5595 4281
Spec Type	M M M M M M M M M M M M M M M M M M M	MB M7 M6.5 M6 III M5 III M2 IIIA K1 III	M4E III C6.3E M6E M3 III M6.5 III M5 III M5 III M3.5 IAB	M3 C M4 G M5 M7E III G0 IB	M7 C7,2E M6 M9 M4E 111 C7,3E
m(27)				6.7.9	. 6. 6. 9.
m(20)			4	6. 1. 1. 1. 4. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.	4
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c(19	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 58 3 21 2 22 2 24 2 24 2 25 3 3 5 3 5 3 5 3 5 3 5 3 5 3 5 5 5 7 7 8 8 8 8 7 7 7 8 8 8 7 7 8 8 7	201 20 30 30 30 30 30 30 30 30 30 30 30 30 30	157 157 157 157 158 158 158 158 158 158 158 158 158 158	2 1 2 2 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
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950	30.88 336.89 34.09 57.00 57.00 50.74 8.05 8.05 8.05	17.3 19.6 19.6 2.0 2.0 11.3 35.0 36.3 8.7	35.0 35.0 35.6 35.6 45.0 45.0 31.7 32.3 32.3	34.0 2.1 2.2 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0
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Table Of Observations

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Names		CA CAP TO PEG AG CAP EP AQR PQ CEP DO 40105 RT CEP GC 30571 HO PEG IO CEP BQ CYG V413 CYG V413 CYG V413 CYG SX 5490	DD 21036 DO 40561 VV CEP GC 30746 PR CEP DO 40493 DO 40532 SVS 5496 GY CYG	TT CEP TW PEG MO CEP NUU PEG ALF AGR
Ŧ	83 06 83 83 83 83 83 83 83 83 83 83 83 83 83	8 8 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	8383 8378 8388	8416 8413 8414 8421
TMSS	40499 40	60327 60328 60327 60328 60330 50401 60330 50409 50409	20525 800525 60333 -20612 60334 50412 60335 20526	60337 -30449 30481 60338 512 512 513
AFGL	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2805 2805 2806 2806 2806 2805 2811 2811 2811 2811 2811 2811 2811 281	2820 2821 2821 2823 2825 2826 2827 2828 5596	2833 2835 2835 2836 2837 2843 2843 2844 2844
Spec Type	M4 111 M6 1111 AB C6.3 M3 111 AB M6 111 AB C6.4 C6.4		M6 M2 IA M2 IA M4 G M5 M3 IIIAB M7P	M7 M7 III M6 G M4 IIIAB K4 III G2 IB M4 IIIAB
m(27)	ຕ ຕຸ			
m(20)	2. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	-4.2.4.5 -3.4.5 -3.7.5 -3.7.5	1 1 1 2 2 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5	-2.7 .2 -2.9 .2
m(11)	1 11 1 1 1 1 1 1 1 4 4 4 4 4 4 4 4 4 4	0 £1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2. 0. 0. c.
m(4)	008 840994 7-44		4 8 0 7 8 7 8 7	II 044 8- 006
RA(1950) Dec(1950) Ref	38 10.4 +50 0 44 UC 38 58.5 +54 5 2 46 SA 39 44.0 -45 49 25 A6 39 54.4 +35 16 55 SA 40 13.5 +45 32 14 SA 40 13.5 +45 32 14 SA 141 5.7 +40 55 32 SA 141 12.0 +54 35 42 IR 141 21.0 -50 28 30 AG 141 34.0 +76 9 42 IR 141 34.0 +76 9 42 IR	21 42 20.4 + 19 18 47 380 21 43 36.3 - 9 30 27 SAD 21 43 36.3 - 9 30 27 SAD 21 44 5.0 + 73 24 36 IRC 21 44 41.9 +57 49 51 SAD 21 45 38.0 +64 22 0 IRC 21 47 30.0 +52 11 12 IRC 21 50 52.0 +51 12 IRC 21 50 52.0 +51 14 30 IRC 21 53 2.0 +51 14 30 IRC 21 53 18.6 +50 15 52 CID 21 53 1.0 +54 14 42 IRC 21 54 1.0 +22 37 42 IRC 21 54 19.3 -14 21 5 SAD	21 54 55.9 +17 31 26 SAD 21 55 13.4 +80 4 16 SAD 21 55 14.4 +63 23 14 SAD 21 55 56.6 -21 25 21 SAD 21 56 35.0 +56 30 54 IRC 21 57 24.9 +62 27 29 SAD 21 57 30.7 +23 42 3 SAD 21 58 8.1 -46 29 42 SPC 21 59 58.0 +48 29 42 SPC	22 0 8.0 +56 44 12 IRC 22 0 22.4 - 0 10 20 SAD 22 1 23.6 +70 16 3 SPC 22 1 42.3 6 +70 16 3 SPC 22 2 22.8 +62 52 34 SAD 22 2 29.1 +70 25 42 SPC 22 3 9.4 + 4 48 48 SAD 22 3 12.9 - 0 33 49 SAD 22 3 17.0 +46 30 5 SAD

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-	88.7 105.3 105.0 103.4 71.9 11.5 96.6 97.9 72.8	103.6 111.0 172.4 172.4 103.1 105.5 106.1	83.6 92.3 103.3 91.9 91.9 53.5 75.7 75.7 106.8	106.9 106.2 86.1 86.1 52.7 97.4 97.7 93.2 83.2 61.3	99.23 99.23 99.23 105.99 105.99 105.89 105.84 74.44
ops	664-6-446	03 03 04 04 05 05 05 05 05 05	- 000 0004	N 9 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1888 3 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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Names	SV PEG DO 40716 T1 CEP DO 40745 SVS 102147 UPS PSA DO 40803 T PEG DO 40856	AZ CEP DM CEP DO 7747 ZET CEP CU CEP RS PEG DO 40954	GK PEG SVS 102156 DG 40997 1 LAC THE AQR EPS GCT UW PEG TX PEG	SVS 102166 DZ AQR FW LAC P12 GRU RT AQR	BET LAC DO 21445 S GRU RV PEG DO 41372 DO 21501 36 PEG
£	8433 8445	8458 8465 8483	8485 8498 8499 8481	8517 8524	8538
TMSS	40501 60340 60341 60342 10510 -30497E 50419 50421 10511	60343 70184 10513 60344 60345 10514	30488 40506 60348 40507 -10578 516	60351 30490 -10580 50427 -20618	50428 30491 30492 30492 50430 40511 60355 105188
AFGL	2845 2847 2848 4286 2851 2851 56715 2856 2854	2857 2859 2859 2865 5600 2865 2865 2866	2868 2869 2875 2875 56785 4288 2879 2880 2881	2885 2887 2888 2888 2891 5602 4289 2893 2893	56845 2895 56875 5603 2900 2904 2908 2910
Spec Type	5	IA G S IB III IIIIB		G G IA-0	1111 5.65 1111 1111
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m(27) Spec	MANASANA CANASANASANA CANASANASANA CANASANA CANASANASANA CANASANA CANASANA CANASANA CANASANA CANASANA CANASANA CANASANA CANASANA CANASANA CANASANA CANASANA CANASANA CANASANA CANASANA CANASANA CANASANA CANASANA CANASANA CANASANASANA CANASANASANA CANASANA CANASANA CANASANASANA CANASANASANA CANASANASANA CANASANASANA CANASANASANA CANASANASANA CANASANASANA CANASANASANASANA CANASANASANASANA CANASANASANA CANASANASANASANA CANASANASANASANA CANASANASANASANA CANASANASANASANA CANASANASANASANA CANASANASANASANASANA CANASANASANASANA CANASANASANASANASANASANA CANASANASANASANASANASANASANASANASANASANA	M M M M M M M M M M M M M M M M M M M	141	• ш	• W W
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m(27)	M M M M M M M M M M M M M M M M M M M	2.6.2 2.7.2 14.3.3 M16 2.5.2 14.3.3 X1.3 X1.3 X1.3 X1.3 X1.3 X1.3 X1.3	3.0 .5 M5 K3 K3 C3 C3 C3 C4 C4 .5 M6 C6 C6 C7 C7 C7 C7 C7 C7 C7 C7 C8 C8 C8 C8 C8 C8 C8 C8 C8 C9 C9 C9 C9 C9 C9 C9 C9 C9 C9 C9 C9 C9	2.0 .2 MB 2.2 .2 .2 .2 9 .3 M6 4.3 .2 -4.1 .3 S4. 3.5 .5 K5	1.4.2 M8E 1.5.2 M8E 3.0.4 C C M6E M6 M5 M5 M5 M6
(11) m(20) m(27)	2.6.4 -2.8.6 M77.4 M57.3.4 M71.C M86 M66 M66	8 C 4 C MS	.0 .4 .2.4 .5 M5 .9 .3 -1.0 C C C .1 .3 -5.0 .4 -8.1 C	.3 .3 -4.1 .4 M6 .1 .2 -2.0 .2 M8 .6 .2 -2.2 .2 -2.9 .3 M6 .9 .4 .3 -3.5 .5 K5	1.6 .2 -1.4 .2 M8E 1.0 .2 -1.5 .2 M8E 1.7 .4 C C 2.0 .3 -3.0 .4 C C M5
Ref m(4) m(11) m(20) m(27)	SAO -1.1 .3 -2.6 .4 -2.6 .6 M7 IRC 1.2 .47 .4 IRC 1.0 .3 -1.3 .4 M7 SAO .7 .3 -1 .1 C M8 IRC 1.6 .4 .1 C M8 SAO 1.4 .5 SAO 1.4 .3 SAO 1.4 .4 .4	SPC	SAO .8 .3 .4 K3 SAO .5 .5 K3 SAO .7 .3 SAO .6 .3 SAO .7 .0 .0 .3 SAO .7 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	UCG .2.4 -2.3.3 -4.1.4 M6 M6 SAO 1.0.3 -9.4 -2.0.2 M8 SAO 1.1.3 -1.1.2 -2.0.2 M8 SAO 1.1.3 -6.2 -2.2.2 -2.9.3 M6 SAO 1.2.3 -4.1.3 SAU SAO 1.2.3 -4.1.4.3 -3.5.5 SAU SAO 1.2.4 -1.4.3 -3.5.5 SAU SAO 1.2.4 -1.4.3 -3.5.5 SAO 1.2.4 -1.4.3 -3.5 SAO 1.2.4 -1.4 SAO 1.2.4 SAO 1.2.4 -1.4 SAO 1.2.4 SAO 1	SAD 1.6 .5 SAD .4 .3 -1.6 .2 -1.4 .2 AGL SPC -1.0 .2 -1.5 .2 IRC 1.3 .4 -1.7 .4 GH .8 .3 -2.0 .3 -3.0 .4 IRC 1.4 .3 IRC 1.3 .3 -1.1 .4 IRC 1.4
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27) S		M8 M6 M7 K1 M7 M0 M0 M2 M2 M2 M2 M2 M2 M2 M2 M2 M2 M2 M2 M2	-3.9 .4 M7E M5 L1.6 C C C C C C C C C C C C C C C C C C C	M3 M3 M5-8-8-8-8-8-8-8-8-8-8-8-8-8-8-8-8-8-8-8	M9 M3 M3 M5 M5 M5 M3 M3
m(27) S	4	3.4 .4 M6 M7 M7 M7 M7 M0 M0 M2 M2 M2 M2 M2 M2 M3 M2 M3 M2 M3 M4 M2 M3 M3 M4 M4 M4 M4 M4 M4 M4 M4 M4 M4 M4 M4 M4	3.9 .4 M77 M57 M57 M57 M57 M57 M57 M57 M57 M57	e.	3.4 .2 M9 M3 M3 M3 M5 M5 2.5 .2 .2 .3 M3
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-	119.5 109.2 116.6	97.3 97.3 97.4 97.4	330.4 116.6 98.1	98.0 105.2 100.9	98.8 98.8 57.7	99.0 99.5 99.5	113.2 119.6 106.4 112.4	106.7 102.4 112.5 76.3 111.2 106.8		8-16-00-00-00-00-00-00-00-00-00-00-00-00-00
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m(27) Spec	3	H2 -3.2 .3	.3 .3		M		WS	വവവ	-2.7 .3 M4	
ļ	-3.4 .5	3.2 3.7 .3	.3 .3	-2.6.3 M6 -3.3.3 M6 -9.2 M6	12.0.2 12.0.2		-2.9.2	വവവ	.7 .3	
m(27)	7. 7.	3.3.2 3.2 -3.2 -3.2 .3	.2.4 -3.2.3 M	-2.6.3 M6 -3.3.3 M6 -9.2 M6	พ.ศ. ว.ฮ.	.4 .2 M2	°.	6.6. 8. 6. 6. 6. 7. 7. 7. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8.	.4 .2 -2.7 .3	.7 .2 K2 .3 M4 .3 M4 .3 M4
(11) m(20) m(27)	.6 .4 .0 .2 9 .4 -3.4 .5	7 .4 -3.3 .2 -3.3 .2 -3.2 .3 -3.2 .3	-3.2.4 -3.2.3 M	-2.6.3 M6 -3.3.3 M6 -9.2 M6	. 6 . 2 . 2 . 2 . 2 . 2 . 2 . 2 . 2 . 2	.7 .48 .2 -2.4 .2 M2	°.	6.6. 8. 6. 6. 6. 7. 7. 7. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8.	-2.4.2 -2.7.3	.6 .2 -2.7 .2 K2 -2.4 .2 M4 .4 .2 -2.8 .2 M4 .7 .2 .7 .2

Supplemental Table Of Observations

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-	54.4 53.6 103.6 119.4 119.4 37.9 39.3 103.8	221 221 222 222 222 202 202 202 203 204 204 205 205 205 205 205 205 205 205 205 205	98.9 119.9 1009.9 1109.9 1122.5 1129.9 118.6	2.7.2 105.0 11.05.0 11.05.0 11.05.0 10.0 10.0	118.6 1170.0 1170.0 1177.6 1170.6 1115.9
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Comments	E0	E3	w		w
Names	908 30	90 8306	DO 23129 41 PSC DO 23164 SVS 45 GC 459	GC 463 AG CET 48 PSC GC 558	NS CAS DO 8398 DO 23435 DO 8404 T PSC DO 23463
£	52		80	109	
TMSS	70006 -30007	20006	60007 10003 50005 -20008	-30008 9 -10010 20008 -40006E	30011 80002 20009 10005 50009
AFGL	60298 60298 60298 60318 60328 60328 60338 60348 60348	60358 60368 60368 60378 60378 60388 60408 60415	60433 40233 40233 40233 40253 40253 60445 60453 60453	40308 60468 60468 60478 60478 40338 40328 60488 60488	60495 60505 60515 60515 60525 795 40365 60335 60538
Spec Type	M2 K5 II	4. II	M2 II K3 G M3 M5 M5	A A A A A A A A A A A A A A A A A A A	MA7 KKS III
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) m(27)	6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6	2 7 - 0 8 7 4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	8.0. 6.5.	2. 2. 2. 4. 3 2. 4. 3	. c.
11) m(20) m(27)	.3 .2 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	2 7 - 0 8 7 4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1.2 .2 -1.8 .2 -3.0 .2	.0 .2 -2.7 .3 .8 .4 -1.3 .2 -2.4 .3 .7 .4 .5 .2 -2.0 .2	.8 .2 .6 .2 -3.1 .2 .1 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2

Supplementa! Table Of Observations

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-	119.6 119.6 119.7 119.9 120.0 121.3	358.0 120.2 316.7 121.7 120.3 120.9 120.2	128.3 121.0 122.0 122.0 122.1 123.5 119.6 119.6	122.5 122.5	1221 1221 1222 1222 1222 1223 1223 1223
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£	2	2	180	201	215
TMSS	-30009	50013	-40007E	12 60018	50014
AFGL	40398 60548 60558 60558 60598 60598 60608	60628 60638 60648 60658 60668 60678 60688 40418	60698 60708 40438 40448 60718 60728 60738 60738	6076S 6077S 4045S 4046S 6078S 6079S 4044S 4049S	4050S 6081S 4051S 4052S 6082S 6083S 110S 6084S 6085S
Spec Type	K2 111 M6	X X S G	83 ES	м м ме	S4.5,5 K1 II M8 M2 RED
m(27)	6. 6.				2. 2. 3.
m(20)	2 2 2 4 1 2 2 2 2	111 1 1 202 2 6 1.70 8 1 202 2 2	2. 8. 2. 2. 4. 2. 2. 4. 2. 2. 7. 1. 2. 2. 7. 1. 2. 2. 7. 1. 2. 2. 7. 1. 2. 2. 2. 7. 1. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2. 7.2 2. 1.5 2. 4.2 2. 7.2
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m(4)	ø o o -	ú − æ 4	ú	c. c.	

Supplemental Table Of Observations

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-	121.2 120.8 122.7 118.0 118.9 122.5 122.9 307.1	223.23.23.23.23.23.23.23.23.23.23.23.23.	124.7 124.6 123.7 123.7 124.4 124.7 124.7	125.02 1255.02 1255.02 1255.03	124.8 124.6 127.7 125.7 126.2 132.1 124.6 147.6 123.9
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Comments	. ш ш		ш		
Names	GC 984	DO 23856 V452 CAS GC 1051 DO 23870	GC 1110 PHI3 CET DQ 8579	DG 23943 IV AND	DG 23957
£	227	742	268		
TMSS	-10013	40015 -20012 50018 70014	-30012 -10015 30017	40016	50022
AFGL	40548 40558 40558 60868 608878 60888 60998 60908	40578 40608 40588 40588 1258 40618 60948 60958	60968 40648 40658 40658 60978 60988 60988 60998	61015 61025 61025 61045 61055 40705 40695 61065 1395	61075 61085 40728 61095 61108 61115 40738 61128
Spec Type	K5 III	M4 K2 G M5 M4 C7,1E	M1 M7	M 4 7 T	A
m(27)	4 1 1 1 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6		6. 6. 6.	 	6 6 6 6 6 7 7 8
m(20)	£ 4.6 - £4. 4 4.6	e. 6.	2 2.6 6 6.4 7 6.4	-2.9 -4.1.4	1 1 2 6 1 1 2 6 1 2 2 2 2 2 2 2 2 2 2 2
m(11)	-2.1.2 -2.1.2 -2.4.2	2. °.	6. 5. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.	1 <u>1.</u> rv ci ci ci	
m(4)	4.6.	0 w w v . 0 . 0 . w w w . 4 . 4 . 4 . 4 . 4 . 4 . 4 . 4	ຕ ພ	4.4 m	8 1. 0. 4 6. 6.
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Dec(1950)	24 49 55 55 56 56 56 56 56 56 56 56 56 56 56	25 10 10 10 10 10 10 10 10 10 10 10 10 10	22 1 2 3 2 4 2 3 3 2 4 4 3 3 2 4 4 3 3 3 2 4 4 3 3 3 3	2 2 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00
	1.0 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.	0.00 0.00	2.0 2.0 3.0 3.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4
RA(1950)	46 53 47 33 47 33 47 53 48 27 49 17 52 49 17 52	49 39 39 6 50 6 50 6 50 6 50 6 50 6 50 6 6 6 6 6	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	00000000000000000000000000000000000000

Supplemental Table Of Observations

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-	224.3 20.4 20.4 20.4 20.4 20.5 20.5 20.5 20.5 20.5 20.5 20.5 20.5	0.000 000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.	225 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	29.00 29.00 29.00 29.20 29.20 29.20	36.77 2.09.27 2.09.27 2.06.13 2.09.13 2.09.13 2.09.13 2.09.13 2.09.13
SQ0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1111111	4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	18-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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£	296 296 298		<u>e</u>	341 352 352 352	363
TMSS	60034 60035 10009 -10017 50025	60037 50026 50028	50027 50029 10012	30020 15 20020 30022	30024
AFGL	1465 61145 40755 40765 40775 61155 61165 61165	61195 61205 61215 61225 61235 61245 1555 61255 61255	61298 61298 61308 61318 61318 61328 61338 61338	61355 40855 61365 40845 40865 61375 40885 61385 61385	6139S 170S 174S 6140S 176S 178S 178S 178S 6400S 6411S
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Ů	e. III II	3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3	1	99 1111	w
Spec	C4.3 M K0 II K0 II K0 II K0 II	ນ ຜ່ ພໍ ພໍ	. 8. 8. X.	8. 3 8. 4 8. 4 8. 11 8. 11 8. 11 8. 11 8. 11	. 7 . 3 M3
m(27) Spec	C4.3 M5 M5 K0 II -2.5.3 K3 II 2.3.2	. 6	.3 .2 -2.1 .3 K2 II .7 .2 -2.5 .3 M4	3.6 .4 -2.7 .3 K5 G 2.3 .2 K4 G 3.6 .5 G8 II 68 II	MGE -2.7 .3 MGE .6 .4 M3
11) m(20) m(27) Spec	4 .2 2 .2 M5 M5 1.3 .2 -2.5 .3 K9 II 1.3 .2 -2.3 .2	.1 .2	.3 .23 .2 -2.1 .3 K2 II .1 .2 -1.7 .2 -2.5 .3 M4 -1.7 .2 -1.7 .2 M4	-3.6.4 -2.8.3 K5 G K4 G -2.3.2 C	.5 .2 M6E .8 .4 -2.7 .3 .3 .3 -3.6 .4 M3
(4) m(11) m(20) m(27) Spec	.4 .44 .2 .4 .2 .4 .2 .4 .5 .9 .5 .3 .4 -1.3 .2 -3.2 .3 .2 .3 .2	. 1 . 2	.4 .4 .1 .2 -1.7 .2 K2 II .3 .4 .1 .2 -2.5 .3 M4 -1.7 .2 M4 -1.7 .2 M4	-3.6.4 -2.8.3 K5 G K4 G III G III K0 III G III K0 III C III	.3 .35 .2 MGE .3 -1.8 .4 -2.7 .3 .3 -3.6 .4 M3 .1 .38 .2 M3
50) Ref m(4) m(11) m(20) m(27) Spec	30 IRC 1.4 .44 .2 C4.3 56 SPC 55 SPC 1.7 .42 .2 M5 17 SAO 1.9 .5 KO II KO II KO II KO II KO II KO II SPC 5.3 .5 -2 .5 .3 K3 II K3 II SPC 5.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	57 SPC 40 SPC 40 SPC 5 SPC 31 SPC 54 AGL 54 AGL 55 SPC 56 22 57 SPC 58 SPC 59 SPC 59 SPC 50 S	21 SPC 23 SPC 30 SPC 53 SAO 1.4 .4 26 SPC 26 SPC 27 .23 .2 -2.1 .3 K2 II 26 SPC 27 SPC 4 SPC 30 SAO 1.8 .4 .2 -1.7 .2 M4 -2.5 .3 M4 -1.7 .2 M4 -1.7 .2 M4 -1.7 .2 M4	2 SPC 54 AGL 58 SPC 37 SAO 2.0.5 48 SAO 1.6.4 -2.3.2 36 AGL 10 SAO 1.6.4 -2.3.2 68 II 50 SPC 30 AGL 1.3.4 -3.6.5 68 II 68 II	19 SPC5 .2 M6E 6 AGL 1.3 .3 -5 .2 M6E 6 AGL 1.6 .3 -2.7 .3
c(1950) Ref m(4) m(11) m(20) m(27) Spec	61 35 30 IRC 1.4 .44 .2 C4.3 C4.3 C4.3 C5 SPC	2 7 52 SPC	8 48 21 SPC 2 59 23 SPC 1 1 30 SPC 3 13 53 SAO 6 5 26 SPC 5 50 20 1RC 5 50 20 SPC 6 5 26 SPC 5 11 4 SPC 9 38 30 SAO 1 8 .4 .2 M4 1 1 2	5 34 2 SPC 4 14 58 SPC 5 11 37 SAO 2.0 .5 5 10 48 SAO 1.6 .4 -2.3 .2 -2.8 .3 -2.8 .3 -2.7 .3 K4 G K4 G -2.3 .2 -3.6 .5 G8 II C8 II C8 II	25 19 SPC5 .2 M6E 57 12 AGL 1.3 .3 -6 AGL 1.6 .3 11 15 SPC -1.8 .4 -2.7 .3 3 12 AGL 2.0 .3 -3.6 .4 M3 15 58 SAO 1.1 .3 -8 .2 21 48 AGL 1.7 .3 -8 .2
) Dec(1950) Ref m(4) m(11) m(20) m(27) Spec	0 +61 35 30 IRC 1.4 .44 .2 C4.3 C4.3 C4.3 C4.3 C4.3 C4.3 C4.3 C4.3	7 +62 7 52 SPC 7 +62 4 52 SPC 7 +24 14 40 SPC 3 +70 25 6 SPC 1 +51 127 SPC 1 +51 127 SPC 1 +51 127 SPC 2 +9 58 54 AGL 8 -22 48 26 SPC 3 -2 -3 -3 -3 -3 -3 -3 -3 -3 -3 -3 -3 -3 -3	6 +68 48 21 SPC3 .23 .2 -2 .3 .2 -2 .3 .2 -2 .3 .2 -2 .3 .2 -2 .3 .2 -2 .3 .2 -2 .3 .2 -2 .1 .3 .4 .1 .2 -1 .7 .2 M4 -1 .4 SPC -45 11 4 SPC -45 11 4 SPC -45 11 4 SPC -45 11 4 SPC -1 .4 .2 -1 .7 .2 M1 M1	5 +45 34 2 SPC 0 -65 24 54 AGL 3 +24 14 58 SPC 0 + 2 10 48 SAO 1 -6 .4 0 -33 46 50 SPC 0 -33 46 10 SAO 1 -2 .3 .2 1 -3 .6 .5 1 -3 .6 .5 1 -3 .6 .5 1 -3 .2 1 -3 .2	B - 6 25 19 SPC5 .2 M6E 0 +21 57 12 AGL 1.3 .3
Dec(1950) Ref m(4) m(11) m(20) m(27) Spec	+61 35 30 IRC 1.4 .44 .2	-31 6 57 SPC	6 +68 48 21 SPC 9 -22 59 23 SPC 9 +81 1 30 SPC 2 +53 13 53 SAO 1.4 .4 7 - 6 5 26 SPC 0 +45 50 30 IRC 1.3 .4 .1 .2 -1.7 .2 M4 1.4 5PC 8 + 9 38 30 SAO 1.8 .4 .2 M1	+45 34 2 SPC -3.6.4 -2.8.3 +2.4 14 58 SPC -3.6.4 -2.7.3 K5 G +2.4 14 58 SPC -2.0.5 +2.1 37 SAO 2.0.5 +2.3.2 -2.3.2 -3.4 4.3 6.3 SPC -3.4 5.0 SPC -3.2 SPC -3.4 5.0 SPC -3.2 SPC -3.3 SPC	- 6 25 19 SPC 5 . 2 M6E +21 57 12 AGL 1.3 .3 +48 11 15 SPC - 1 8 .4 +13 3 12 AGL 2.0 .3 +43 12 AGL 1.2 .4 -3.3 .3 -3.6 .4 +48 47 45 SPC - 7 21 48 AGL 1.7 .3 -8 .2 -7 21 48 AGL 1.7 .3 -8 .2

Supplemental Table Of Observations

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-	127.0 124.6 147.2 127.8 127.5 137.1 126.8 135.8	138.9 128.3 139.6 139.6 138.8 163.3 163.3	127.5 126.1 126.1 125.3 132.5 132.5 128.0 163.1	1377 1378 1378 1377 1277 1274 1274 1333 1331 1291 1291 1291 1291 1291 1291	284 - 136 - 9 - 136 - 9 - 136 - 9 - 136 - 9 - 128 - 9 - 128 - 5 - 128 -
sq0	1114481111	1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	1 - 1 - 2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	
Comments			E O		O O
Na es	DO 24159 GC 1539 SVS 5909 PP CAS	GC 1657 GC 1682 GC 1687	DO 24312 DO 8752 PSI CAS AL PHE IK CAS	SVS 100115 DO 24366 DO 24400 CE AND	GC 1813 DO 8792 DO 8798 GC 1870 WW CAS DO 242 CHI CAS
Œ	372	392 400	988 8		435
TMSS	70023 40020 60045 70025	18 -20014 -30014	60049 10016 70027 -40009E 50035	60051 80003 50037	10018 20027 60055 60056 20
AFGL	1875 40945 61425 61435 61445 1945 40955 2015	61455 61465 2025 2025 2045 61475 40998 61485 2095	41028 2135 61493 61508 61508 61518 41038 61528 61528 61528	61548 61558 61558 61568 61568 61568 61578 61588 61588 61588	41112 41123 41123 41123 41145 61615 61615 6162 6162 6163
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m(27) Spe				Z Z Z	•
	8	e. e. e. 4 MA 4 EMA	ee ee EE EE EE EE EE	-1.9.2 -2.0.2 M2 -2.4.2 M5	•
m(27)	2 -2.1 .2	2. 2. 2. 4. 5. 6. 9. 3. 3. 4. 5. 6. 4. 5. 6. 4. 5. 6. 4. 5. 6. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.	ee ee EE EE EE EE EE	0 0 4 4 4 5	2. 2. 4. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8.
) m(20) m(27)	6 .4 7 .3 .3 .2 .2.1 .2 8 .3 .1 .2 .2.1 .2 8 .4 .3	2. 2. 2. 4. 5. 6. 9. 3. 3. 4. 5. 6. 4. 5. 6. 4. 5. 6. 4. 5. 6. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.	MS M	.3 .2 -2.0 .2 .3 .2 -2.4 .2 .1 .2	A .2 .2 .2 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5

Supplemental Table Of Observations

٥	8.66.8 1.46.3 1.47.2 1.43.9 1.41.6 1.41.6 1.42.4 1.43.9 1.44.4 1.	63.25.1.4.4.5.3.8.8.8.8.8.8.9.9.5.9.9.9.9.9.9.9.9.9.9.9	7.11.1 7.13.5 7.13.6 7.	10.4 -47.0 -77.2 -67.9 -27.2 -34.6 -23.4	1.7.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.
-	44.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	159.00 179.00 179.00 179.00 179.00 179.00 179.00	133.0 152.7 1733.2 1733.0 1749.5 156.6 156.6	127.1 2069.9 2069.9 2069.9 136.3 136.3 139.1 144.5	2444 2444 2444 2444 2444 2444 2444 244
80		1111111111	\$ 1 1 1 1 5 1 1 1 2	S	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
	60		EO		
Comments					
Zo do s	AP CET DO 8822 DO 8820 SVS 100123	GC 1975 SW CET DO 24581 UV CET AZ CAS DO 275	DG 24681 GC 2093 DG 24682 TAU CET VS89 CAS OMI PSC GC 2148 BX CAS	GC 2189 DO 8929 DO 8946	DG 24930
E I	4 50 450 80 80		20 00 0 12 20 00 00 00 00 00 00 00 00 00 00 00 00		
TMSS	-20015 -20028 -20028 -30016	21 22 60060 23	50043 24 60062 -20018 60063 10021	30030	70031
AFGL	× × × × × × × × × × ×	41248 2398 41258 41268 2418 2418 41288 61668	61675 4 1315 4 1323 4 1323 6 1685 6 1685 6 1 1365 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	6169S 6170S 4140S 4141S 4142S 4143S 6171S 6172S 4144S	61745 61765 61765 61765 61775 61795 61805 61805
Type	111AB	111	-		
Spec T	M7 111 M6 111 M7 111	KS M7 G M2 III OB+NOE	M2 IB M3 II M6 VP M3 IAB M4 III	0 9 9 3 3	e S
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m(27) Spec	M2 M2 M6 M6 M6 M6 M6 M7 M7 M8 M8		.4 .2 M2 K3 K3 C8 C8 C8 C8 C8 C7 .2 .9 .3 M3 C8	6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6	2.22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
m(11) m(27) Spec	6.2 M2 M2 -3.7.6 -2.3.3 M6 -2.2.2 -3.7.6 -4.4.3 K2		.4 .2 M2 K3 K3 C8 C8 C8 C8 C7 .2 .9 .3 M3 C8	.3 .4 .3.9 .2 .2.3 .3 .3 .4 .3.9 .4 .6.7 .6 .5 .5 .3 .3 .3 .1 .2 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	2.22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
(11) m(20) m(27) Spec	36.2 44 45 55 65 72 73 74 75 75 75 76 76 77 78 78 78 78 78 78 78 78 78	4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	12.4.2 44 55 68 68 68 7.7.1 7.84 7.9.3 83 83 84 84 84 84 84 84 84 84 84 84	-2.3.4 -2.1.2 -2.3.3 -2.3.4 -3.6.5 -3.9.4 -6.7.6 31.29.2 -3.0.2	2.3.2 2.1.2 2.4.2 2.6.2 2.7.4 4.7.4 1.4.7 2.6.6 1.4.7 2.6.6 2.7 3.7 4.7 4.7 4.7 5.7 6.7 6.7 6.7 6.7 7 7 8 7 8 7 8 7 8 7 8 7 8 8 7 8 7 8 7
4) m(11) m(20) m(27) Spec	.6 .3	04.04.0.40.0.40.4.0.4.0.4.0.0.0.4.4.0.0.0.0.4	-2.4.2 -4.4.6 -4.5 -7.4 -9.3 -9.3 -9.3 -9.3 -9.3 -9.3 -9.3 -9.3	9 .4 .4 .5 .7 .9 .2 .9 .2 .9 .9 .9 .9 .4 .4 .4 .4 .5 .9 .2 .	-2.3.2 -2.3.2 -2.4 -2.9.2 -2.4.2 -4.1.3 -4.1.3
0) Ref m(4) m(11) m(20) m(27) Spec	41 SPC	40 SAG 2.0.4 18 AGL 1.4.3 54 IRC 1.5.3 57 SAG 1.4.4 22 AGL 1.2.3 24 AGL 1.7.3 6 AGL 1.6.3 10 SPC 29 SAG 1.6.4	54 SPC	24 SPC 0 SPC 30 AGL 54 AGL 6 AGL 1.9 .4 1.2 2.1 .2 -2.1 .2 -2.3 .4 -3.6 .5 -3.9 .4 -6.7 .6 3 SAO 14 SPC 27 SPC 38 SAO 1.4 .4 -1.2 .2	45 SPC 45 SPC 45 SPC 14 SAO 15 .4 12 .9 .2 13 SPC 36 AGL 1.2 .3 8 SPC 8 SPC 1.2 .3 1.4 .2 .3 1.4 .2 .3
(1950) Ref m(4) m(11) m(20) m(27) Spec	4 11 41 SPC6 .2	3 41 40 SAG 2.0 .4 8 25 18 AGL 1.4 .3 1 6 54 IRC 1.5 .3 0 38 57 SAO 1.4 .4 8 13 24 AGL 1.2 .3 8 40 42 AGL 1.7 .3 5 47 6 AGL 1.6 .3 1 10 10 SPC -1.7 .2 3 22 29 SAO 1.6 .4	3 55 54 SPC -2.4 .2 M2 3 56 29 SAO 1.7 .4 M2 8 33 0 IRC 1.8 .4 M6 6 12 0 SAO 1.7 .4 G8 6 12 0 SAO 1.7 .4 G8 6 44 37 SPC -2.9 .3 M3 6 58 SAO 1.8 .4 G8 58 SAO 1.8 .4 G8 58 SAO 1.8 .4 G8 58 SAO 1.5 .4 C7 .2 M44	2 31 24 SPC 2 29 30 AGL 5 35 54 AGL 6 27 6 AGL 6 12 27 SPC 7 46 38 SAO 2 57 26 SPC 7 46 38 SAO 2 57 26 SPC 1.9 .4 .4 .4 .1.2	3 38 45 SPC
) Dec(1950) Ref m(4) m(11) m(20) m(27) Spec	2 + 4 11 41 SPC6.2 0 +15 6 0 AGL 1.6.3 0 -19 13 36 IRC 2.0.4 4 +18 12 21 SAO 1.5.4 4 +18 12 22 IRC 2.1.5 1 +50 26 38 SPC 2.1.5 0 +12 20 48 AGL 2.1.4 -2.2.2 -3.7.6 4 +10 45 0 SPC -4.4.3 2 -36 42 30 SAO 1.1.4 MA	9 - 3 41 40 SAG 2.0 .4 0 + 8 25 18 AGL 1.4 .3 0 + 1 6 54 IRC 1.5 .3 3 +60 38 57 SAG 1.4 .4 0 -18 13 24 AGL 1.2 .3 0 + 5 40 42 AGL 1.7 .3 0 - 5 7 6 AGL 1.6 .3 7 +61 10 10 SPC -1.7 .2 4 - 3 22 29 SAG 1.6 .4	7 +43 55 54 SPC 7 - 3 56 29 SAO 1.7 .4 0 +58 33 0 IRC 1.8 .4 7 -16 12 0 SAO 1.4 .5 1 +44 6 41 SPC 0 +50 43 7 SAO 1.7 .4 0 +60 44 37 SAO 1.7 .4 0 +8 54 25 SAO 1.8 .4 5 - 5 58 58 SAO .9 .3 0 +62 19 6 IRC 1.5 .4 1.7 .4 .6 .8 .4 .8 .4 .8 .4 .8 .4 .8 .4 .4 .8 .4 .4 .4 .8 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4	4 +72 31 24 SPC 8 +13 28 0 SPC 0 -42 29 30 AGL 0 -25 35 54 AGL 0 -46 27 6 AGL 1.9 .4 5 +73 53 34 SPC 1 +26 12 27 SPC 4 +37 46 38 SAO 9 +12 57 26 SPC -1.9 .2 -2.3 .3 -2.3 .3 -2.3 .3 -2.3 .3 -6.7 .6 -6.7 .6 -6.7 .6 -6.7 .6 -6.7 .6 -7.6 -7.6 -7.6 -7.6 -7.7 .6 -7.8 -7.8 -7.8 -7.8 -7.8 -7.9 .2 -7.9 .2 -7.9 .2 -7.9 .2 -7.9 .2 -7.9 .2 -7.9 .2 -7.9 .2 -7.6 -7.6	6 +43 38 45 SPC 7 +43 50 22 SPC 6 +12 49 45 SPC 5 +26 8 56 14 SAC 5 +20 14 3 SPC 7 +20 14 3 SPC 6 +6 46 36 ACL 7 +20 4 6 SPC 7 +21 3 SPC 8 +34 30 13 SPC 9 +6 46 36 ACL 1.2 .3 -4.2 .3 -4.1 .3 -4.2 .3 -4.1 .3 -4.1 .3 -4.1 .3
Dec(1950) Ref m(4) m(11) m(20) m(27) Spec	+ 4 11 41 SPC - 6 .2 +15 6 0 AGL 1.6 .3 -19 13 36 IRC 2.0 .4 +18 12 21 SAO 1.5 .4 +37 55 34 2 IRC 2.1 .5 .4 +50 26 38 SPC 2.1 .5 .4 +10 45 0 SPC -2.3 .3 -15 39 19 SAO 1.6 .3 .4 .3 .4 .3 -36 42 30 SAO 1.1 .4 .4 .3	3 41 40 SAC 2.0 .4 8 25 18 AGL 1.4 .3 1 6 54 IRC 1.5 .3 0 38 57 SAC 1.4 .4 8 13 24 AGL 1.2 .3 8 40 42 AGL 1.7 .3 5 47 6 AGL 1.6 .3 1 10 10 SPC -1.7 .2 3 22 29 SAC 1.6 .4	+43 55 54 SPC -2.4 .2 M2 -3 56 29 SAO 1.7 .4 K3 +58 33 0 IRC 1.8 .4 M6 -16 12 0 SAO 1.7 .4 6	+72 31 24 SPC +13 28 0 SPC -42 29 30 AGL -25 35 54 AGL -46 27 6 AGL +10 53 19 50 +70 53 19 50	+43 38 45 SPC +43 50 22 SPC +12 49 45 SPC +21 53 19 SPC +21 13 SPC +34 30 13 SPC +6 46 36 AGL +6 46 36 AGL +7 1 3 +20 2 4 2 +6 46 36 AGL +7 1 .3 +7 1 .3 +7 1 .3 +7 1 .3 +7 1 .3 +7 1 .3 +7 1 .3

Supplemental Table Of Observations

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-	23. 442. 442. 442. 443. 443. 443. 443. 4	159.0 159.0 159.0 159.6 159.6 1231.4 1277.2	1488.3 1622.3 1622.3 1622.3 1622.3 1622.3	139 159 158 158 166 166 166 166 166 166 166 166 166 16	172.1 174.7 138.8 138.8 161.9 186.6 143.1 157.5
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(11) m(20) m(27)	7 .2 -3.4 .4 -3.9 .3 -7 .2 -2.0 .2 -3.1 .3	1.1.2 -1.8.2 -3.6.3 -3.6.3 -4.3.3 -4.3.3 -7.2	6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6	2.0.2 1.2.3.2 1.8.2 1.8.2 1.2.3.2 2.1.3.2 2.3.2 2.3.2 2.3.2	.3.2.2 -3.2.2 -3.2.2 -2.5.2 -2.5.3
4) m(11) m(20) m(27)	AGL 1.3 .3 -7 .2 -3.4 .4 -3.9 .3 SPC SPC 1.5 .37 .2 -3.4 .4 -3.1 .3 SPC 1.6 .4 -2.0 .2 SPC AGL 1.2 .3 IRC 1.7 .4	SPC -1.1.2 -1.8.2 SPC SPC -2.2.2 -1.8.2 SPC	9. 1 2 2. 4 . 2 . 3 . 4 . 6 . 4 . 6 . 7 . 6 . 7 . 6 . 7 . 6 . 7 . 6 . 7 . 6 . 7 . 6 . 7 . 6 . 7 . 6 . 7 . 6 . 7 . 6 . 7 . 6 . 7 . 6 . 7 . 6 . 7 . 6 . 7 . 6 . 7 . 6 . 7 . 6 . 7 . 7	.6 .3 .9 .2 .1 .2 .2 .2 .2 .4 .4 .1 .2 .2 .2 .2 .1 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2	AGL 1.3 .3 SAD 1.8 .3 SPC 5.2 SPC 6.4 -3.2 .2 SAD 1.6 .4 -3.2 -2.5 .2 SPC 7.3 .2 -2.5 .2 SPC 7.3 .2 -2.5 .2
) Ref m(4) m(11) m(20) m(27)	GL 1.3 .3 -7 .2 -3.4 .4 -3.9 .3 GL 1.5 .3 -7 .2 -3.4 .4 -3.1 .3 PC 1.6 .4 -2.0 .2 GL 1.2 .3 RC 1.7 .4	PC -1.1.2 -1.8.2 PC -2.2.2 -3.0.2 PC PC -2.2.3.0.2 PC	PC	1.6 6.6 6.6 6.6 6.7 6.7 6.7 6.7 6	5 56 SAD 1.8 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
Ref m(4) m(11) m(20) m(27)	2 24 AGL -1.4 .4 -3.9 .3 8 36 AGL 1.3 .37 .2 -3.4 .4 -3.9 .3 2 30 SPC 1.5 .37 .2 -3.4 .4 -3.1 .3 2 1 SAC 1.6 .4 -2.0 .2 2 24 AGL 1.2 .3 1 6 IRC 1.7 .4	- 3 57 53 SPC - 3 38 35 SPC - 3 38 35 SPC - 3 59 57 SPC - 3 59 57 SPC - 3 59 57 SPC - 3 57 41 SPC - 2 .2 -3.0 .2 -3.6 .3 -4.3 .3 -4.3 .3 +59 1 3 SPC - 4.3 .3 - 4.3 .3 +11 34 37 SPC - 7 .2	3 20 SPC	26 SPC 7 14 SPC 0 35 SPC 4 20 SPC 4 20 SPC 1 8 .2 1 8 .2	5 56 SAD 1.8 .3 .3 .2 .2 .2 .2 .3 .18 SPC3 .2 .2 .2 .3 .3 .4 24 AGL 1.8 .3 .3 .3 .3 .3 .3 .3 .3 .5 .5 .2 .2 .3 .5 .5 .2 .5 .2 .5 .2 .5 .2 .5 .2 .5 .2 .5 .2 .5 .2 .5 .2 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
Dec(1950) Ref m(4) m(11) m(20) m(27)	10.0 -31 52 24 AGL -1.4 .4 -3.9 .3 17.0 + 6 58 36 AGL 1.3 .3 -7 .2 19.5 +61 56 37 SPC -7 .2 -3.4 .4 18.0 + 7 42 36 AGL 1.5 .3 -7 .2 35.9 - 3 30 SPC -3 30 SPC -3.1 .3 56.4 +37 2 1 SAO 1.6 .4 57.0 -3 51 18 SPC -3.1 .3 59.0 +43 32 24 AGL 1.2 .3 8.0 +59 1 6 IRC 1.7 .4	3 57 53 SPC -1.1 .2 -1.8 .2 5.3 43 SPC -2 .2 -1.8 .2 5.3 43 SPC -2 .2 -3.0 .2 -3.6 .3 5.9 57 SPC -2 .2 -3.0 .2 -3.6 .3 5.9 57 SPC -2 .3 .9 1.3 .4 -1.8 .4 -1.8 .4 -1.8 .4 -1.8 .4 -7 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	1 23 20 SPC	1.1 +34 0 26 SPC 4.8 - 4 27 14 SPC 16.8 +34 10 35 SPC 24.3 - 0 44 20 SPC 34.0 - 7 33 30 AGL 20.0 - 45 36 12 AGL 20.2 - 4 20 18 SPC 22.9 - 7 18 36 SPC 36.7 +36 57 21 SPC -2.3 .2	2 5 5 5 SAO 1.8 .3 -3 -3.2 .2 -3.2 .2 .2 .3 18 SPC -3.2 .2 -3.2 .2 .2 .3 4 24 AGL 1.8 .3 -3.2 .2 .2 .3 .3 .3 .5 SPC -3.2 .2 -3.2 .2 .2 .3 .3 .4 SPC -3.2 .2 -2.5 .2 -2.5 .2 .3 .3 .2 .2 .3 .2 .3 .3 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
) Ref m(4) m(11) m(20) m(27)	0.0 -31 52 24 AGL -1.4 .4 -3.9 .3 6.8 +20 7 9 SPC 7.0 + 6 58 36 AGL 1.3 .3 -7 .2 -3.4 .4 9.5 +61 56 37 SPC 8.0 + 7 42 36 AGL 1.5 .3 -7 .2 -3.1 .3 5.9 - 3 30 30 SPC 6.4 +37 2 1 SAG 1.6 .4 -2.0 .2 7.0 - 3 51 18 SPC 9.0 +43 32 24 AGL 1.2 .3 8.0 +59 1 6 IRC 1.7 .4	0.0 - 3 57 53 SPC 9.3 - 3 38 35 SPC 13 +35 53 43 SPC 4.4 - 3 59 57 SPC 0.1 - 3 57 41 SPC 5.6 +59 1 34 SAU 4.0 -70 23 0 AGL 4.1 +75 42 40 SAU 6.7 +11 34 37 SPC -1.8 .2 -3.6 .3 -4.3 .3	1.0 +11 23 20 SPC - 9 .2 -2.4 .2 9.8 - 4 17 2 SPC - 9 .2 -2.5 .2 1.9 - 4 26 0 SPC - 9 .2 -2.5 .2 1.9 - 4 26 0 SPC - 9 .2 -1.3	4.8 - 4 27 14 SPC 6.8 +34 10 35 SPC 4.3 - 0 44 20 SPC 4.0 - 7 33 30 AGL 1.0 +16 3 0.0 - 45 36 12 AGL 0.2 - 4 20 18 SPC 2.9 - 7 18 36 SPC 6.7 +36 57 21 SPC -2.3 .2	5.8 -12 5 56 SAD 1.8 .3 -3.2 .2 5.5 SAD 1.8 .3 -3.2 .2 3.0 +37 3 18 SPC -3 4 24 AGL 1.8 .3 -3.2 .2 -3.2 .2 3.0 +25 37 32 SPC -3 4 24 AGL 1.8 .3 -3.2 -2 5.2 .2 5.2 .2 5.2 .2 5.2 .2 5.2 .2 5.2 5

Supplemental Table Of Observations

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(11) m(20) m(27)	2	33 - 3.2 .3 93 .1 .2 - 3.4 .3 M5	3 -4.0 .3 -4.3 -4	3 -1.4.2 -3.3.5 K4 -3.6.2 -3.0.3 M3	33 -1.3.4 .5 MSE -1.3.2 -1.3.2 .8 MSE -1.3.2 .2 .8 MSE -1.4.2 MSE -1.4.2 MSE -1.4.2 MSE -1.4.2 MSE -1.4.2 MSE -1.5.5.2
m(11) m(20) m(27)	SPC SPC SPC SPC SPC SPC SPC SPC 1.9 .5 -3.2 .2 SPC 1.9 .5 -3.3 .2 SPC 1.3 .3 .5 .5 .5 SPC 1.3 .3 .3 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	.5 .3 .2 .3 .5 .3 .5 .3 .1 .2 .1 .2 .3 .8 .2 .1 .2 .1 .2 .3 .4 .3	SPC	.6 .3 .3 .3 -1.4 .2 -3.3 .5 .6 .4 -3.6 .2 -6 .4 -3.6 .2 -6 .4 -3.6 .2	.4 .3 -1.3 .4 -3.4 .5 M5E 3 .3 .2 -2.3 .2 M5 4 .3 .31.4 .2 M5
Ref m(4) m(11) m(20) m(27)	3 49 SPC 7 49 SPC 7 49 SPC 8 32 SPC 6 36 SPC 6 36 SAC 1.0 .2 -3.2 .2 -3.2 .2 -3.3 .2 -3.4 .2 -2.4 .2 -3.3 .2	7 42 SPC	4 2 SPC	3 43 SPC 6 14 SPC 7 12 AGL 1 17 SPC 1 17 SPC 2 23 SPC 6 54 AGL 6 54 AGL 6 2 SAO 1 15 .4 -1.9 .2 -3.0 .3 -3.0 .2 -3.0 .2 -3.0 .2 -3.0 .2	8 49 AGL 1.4 .3 -1.3 .4 -3.4 .5 MSE 49 SPC 1.8 .4 -8 .2 -2.3 .2 NO 49 SPC 5.5 SPC -3.2 -2.3 .2 NO 5.5 SPC 1.4 .3 -1.4 .2 NO 5.5 SPC 5.2 SPC -1.4 .2 NO 5.5 SPC 5.2 SPC
Ref m(4) m(11) m(20) m(27)	6 53 49 SPC 6 47 49 SPC 6 58 32 SPC 6 58 32 SPC 6 58 32 SPC 6 58 32 SPC 7 10 2 -3.3.2 9 46 30 SAC 9 46 30 SAC 1.0.2 -3.6.5 9 46 30 SAC 4 50 2 SPC 4 3 41 SPC 4 3 41 SPC -3.3.2	4 40 38 SPC -3.2 .3 -3.2 .3 -3.2 .3 .4 53 24 AGL 1.5 .3 -3.8 .2 -2.9 .3 .4 34 42 SPC -3.8 .5 .5 SPC -3.8 .2 -2.9 .3 .4 59 11 SPC -3.8 .1 .2 -3.4 .3 .4 .3 SPC -3.9 .1 .2 -3.4 .3 .4 .3 SPC -2.0 .2 -3.9 .3 .4 .3 SPC -2.0 .2	5 34 3 SPC 2 14 42 AGL 5 55 22 SPC 7 0 36 AGL 3 55 22 SPC 7 0 36 AGL 3 55 22 SPC 7 0 36 AGL 3 55 22 SPC 4 3 3 3 3 3 3 4 3 3 3 4 4 3 3 3 4 4 8 5 9 5 PC 2 48 59 SPC 3 59 54 SAO 6 3 13 SPC 7 6 .2 4 8 9 SPC 8 3 13 SPC 8 4 6 7 SAO 1 5 .4 6 .7 .2 MO	5 16 14 SPC 5 47 12 AGL 1 17 SPC 7 2 8 SAC 7 9 53 SPC 6 54 AGL 7 9 53 SPC 7 9 53 SPC 7 9 53 SPC 8 6 54 AGL 8 6 54 AGL 8 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7	48 49 AGL 1.4 .3 -1.3 .4 -3.4 .5 M5E 0 1RC 1.8 .4 -8 2 -2.3 .2 A 5 0 45 5 5 5 5 5 0 1RC 1.8 .4 -3.2 -2.3 .2 A 6 5 5 5 6 0 1RC 1.4 .3 -1.4 .2 A 5 5 5 C 12 6
Dec(1950) Ref m(4) m(11) m(20) m(27)	.8 - 0 53 49 SPC .4 + 4 51 42 SPC .4 + 36 47 49 SPC .5 + 36 58 32 SPC .4 - 0 33 26 SPC .3 - 39 46 36 SPC .3 - 39 46 36 SAO .0 - 59 1 30 SAC .0 - 59 1 30 SPC .1 + 4 50 2 SPC .3 - 3 - 3 4 1 SPC .3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 -	0 + 4 40 38 SPC	0 + 5 34 3 SPC 0 + 22 14 42 AGL 10 + 5 55 22 SPC 10 + 5 37 38 SPC 10 - 27 0 36 AGL 10 - 23 55 0 SPC 10 - 23 55 0 SPC 10 - 23 55 0 SPC 10 - 24 48 59 SPC 10 - 25 44 59 SPC 10 - 26 52 SPC 10 - 27 0 36 AGL 10 - 27 0 36 AGL 11 0 - 27 0 36 AGL 12 0 - 27 0 36 AGL 13 0 - 27 0 36 AGL 14 0 - 27 0 36 AGL 15 0 - 27 0 36 AGL 16 0 - 27 0 36 AGL 17 0 -	9 + 4 53 43 SPC 0 +35 16 14 SPC 0 - 5 47 12 AGL 1.9 - 5 47 12 AGL 1.9 - 5 46L 1.17 SPC 1.0 + 47 54 AGL 1.0 + 57 3 SPC 1.0 + 67 4 4 2 2 SPC 1.0 + 67 5 6 54 AGL 1.0 + 67 5 6 54 AGL 1	0 -25 48 49 AGL 1.4 .3 -1.3 .4 -3.4 .5 MSE 0 -20 45 0 1RC 1.8 .4 -8.2 -2.3 .2 0 +58 0 49 SPC 0 +2 47 24 SPC 0 -1 3 56 0 1RC 1.3 .3 0 +63 56 0 1RC 1.4 .3 13 43 2 8PC 14 .2 14 .2 15 +49 12 6 SPC 16 -25 .2 17 4 .2 18 -25 .2 18 -2 4.5 .2 18 -2 5 .2 18 -2 5 .2 18 -2 5 .2 18 -2 5 .2 18 -2 5 .2 18 -2 6 SPC 18 -3 -1 4 .2 19 -4 6 SPC 19 -4 6 S
Dec(1950) Ref m(4) m(11) m(20) m(27)	- 0 53 49 SPC + 4 51 42 SPC + 36 47 49 SPC + 36 58 32 SPC - 0 33 26 SPC - 3 46 36 SAO + 59 1 30 SAO + 50 2 SPC + 4 43 41 SPC - 2 4 2 - 3 3 2	0 + 4 40 38 SPC 0 - 11 57 42 AGL 1 + 4 34 42 SPC 8 + 5 25 55 SPC 0 - 13 58 12 AGL 1 + 4 29 11 SPC 0 + 4 29 11 SPC 0 + 6 13 35 SPC 0 + 6 13 35 SPC 1 · 2 · 3 · 3 · 3 · 3 · 3 · 3 · 3 · 3 · 3	B 10.0 + 5 34 3 SPC B 20.0 + 5 55 22 SPC B 56.9 + 5 37 38 SPC 9 14.0 -27 0 36 AGL 9 27.0 -23 55 0 IRC 1.2 .45 .46 .2 M6 0 4.5 +43 59 54 SAO 0 11.3 +58 3 13 SPC 0 19.4 +15 2 47 SAO 1.5 .47 .2 M0	9 + 4 53 43 SPC 0 + 35 16 14 SPC 0 - 5 47 12 AGL 1 0 - 19 47 54 AGL 1 17 SPC 2 - 4 2 2 SPC 0 + 75 6 54 AGL 0 - 19 47 54 AGL 1 6 .4 - 3.3 .5 - 3.0 .2 1 7 9 53 SPC 0 + 75 6 54 AGL 0 - 23 36 2 SAO 1.5 .4 - 6 .4 M3	0 -25 48 49 AGL 1.4 .3 -1.3 .4 -3.4 .5 MSE 0 +58 0 45 0 1RC 1.8 .4 -8 .2 -2.3 .2 8 - 2 47 24 SPC - 13 .2 -2.3 .2 0 - 1 3 .3 0 +63 56 0 1RC 1.4 .3 2 +32 45 20 SPC 2 +49 12 6 SPC - 2 5 .2 - 2 5 .2 MS5 MS6 MS7
Ref m(4) m(11) m(20) m(27)	56.8 - 0 53 49 5PC 8.4 + 4 51 42 5PC 17.4 +36 47 49 5PC 33.5 +36 58 32 5PC 5.4 - 0 33 26 5PC 9.3 -39 46 36 5AO 11.0 + 50 2 5PC 11.1 + 4 50 2 5PC 35.3 + 4 43 41 5PC 35.3 + 4 43 41 5PC	7.0 + 4 40 38 SPC 8.0 -11 57 42 AGL 21.0 - 4 53 24 AGL 32.1 + 4 34 42 SPC 33.8 + 5 25 55 SPC 16.0 -13 58 12 AGL 1.5 .3 -3.8 .2 -2.9 .3 50.0 +48 42 91 SPC 44.0 + 6 13 35 SPC 55.3 +15 49 16 SPC 73.2 .3 .3 .3 .8 .2 .3 .3 .8 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	10.0 + 5 34 3 SPC 11.0 +22 14 42 AGL 20.0 + 5 55 22 SPC 56.9 + 5 37 38 SPC 14.0 -27 0 36 AGL 27.0 -23 59 .4 -3.9 .4 -6.3 .3 27.0 -23 55 50 SPC 47.2 +42 48 59 54 SAO 11.3 +58 3 13 SPC 19.4 +15 2 47 SAO 1.5 .4 -7 .2 MO	29.9 + 4 53 43 SPC 35.0 +35 16 14 SPC 23.0 - 5 47 12 AGL 46.9 +40 1 17 SPC 46.9 +40 1 17 SPC 40.0 +67 3 8 SAO 1.2 - 4 23 SPC 5.3 + 7 9 53 SPC 14.0 +75 6 54 AGL 18.0 -23 36 2 SAO 1.5 .4 -3.6 .2	35.0 -25 48 49 AGL 1.4 .3 -1.3 .4 -3.4 .5 MSE 20.0 +58 0 45 0 1RC 1.8 .4 -8 .2 -2.3 .2

Supplemental Table Of Observations

COMMENDED TO SERVICE T

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-	138.5 195.2 133.7 148.3 134.8 130.4	144 144 144 144 144 144 144 144 144 144	154.7 237.8 139.0 144.7 137.4 163.9 194.2 2291.5 175.7	132 132 144 144 133 133 150 150 150 150 150	137.8 147.4 147.4 165.7 165.7 165.7 167.4 167.4
Obs	1411-		8111081111		1 - 2 2 2 2 2 2 2 2 2 2 - 2 2 -
Comments	E E				
Names	DO 9202 DK PER DO 25605	12 CET BI AND R CET DO 9273 GC 2940	TW ARI IC 1813 DO 25844 14 TRI	DO 25906 SVS 231 DO 9403 DO 9405 NUU CET GC 3125	M TRI IOT ERI GC 3233 W 7233 AI CET
£		71	736	748 754 747	7
TMSS	20044	-10034 40040 32 40041 30042	20045 50066 40043 50067	70036 20046 40045 10030 70037 -30019E	30047 -40017E 10031 -20036 20048
AFGL	62455 41835 41845 41865 41865 62465 62465 62475	62498 41908 41908 41928 62508 41938 41948 41968	62528 41998 42008 62538 62548 62548 42018 42018	42038 42008 42008 42008 42008 42113 42115 42115 42115 42115	3625 3685 42175 42175 62555 42195 3705 62565
Spec Type		ш	н	HH	_
Spec	X X	M S S S S S S S S S S S S S S S S S S S	X XX X 50 0 0 11	E EXOXE E E 4400 E 0 E 111	2
	. rin 	Z N Z Z X E 80 4 2 0 0			
m(27)	6 66 F 10 10 10 10 10 10 10 10 10 10 10 10 10	n a	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	E EXQXE E	AXX E E
	5. 5.5. 7. 10.00 1		2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.	E EXQXE E	ZXX Z Z 400 N N
m(27)	5. 5.5. 7. 10.00 1	4	2. 2. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3.	4 4 4 5 E E E E E E E E E E E E E E E E	455 E E
11) m(20) m(27)	7 .3 4 .3 6 .3 6 .4 7 .0 .2 7 .9 .4 7 .9 .4	2. 4. 1. 2. 2. 2. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4.	3.2 -1.6 .3 M5 -1.2 .4 .7 .2 -1.1 .2 -2.2 .3 M6 -2.0 .2 -2 .1 .2 -2.2 .3 M6 -2.0 .2 -2 .8 .5 M5 5.3 5.3 M5	8 . 4	70 . 3 . 4
f m(4) m(11) m(20) m(27)	1.7 .3 1.4 .3 1.6 .3 1.6 .4 1.6 .4 1.6 .4 1.9 .4	2.2.4 1.4.3 1.3.3 -1.3.2 1.7.4 .2.2 1.1.4 .1.2	1.4 .4 .7 .2 .1.1 .2 -2.2 .3 M6 1.3 .4 .7 .2 .1.1 .2 -2.2 .3 M6 1.5 .4 .2.0 .4 .4.6 .5 M5 1.5 .3 1.5 .3	1.8 .4 MA 4.1	4.0.1 4.0.1 1.0.2 1.0.4 4.0.1 4.0.1 4.0.1 4.0.1 4.0.1 5.0.2 4.0.1 5.0.2 5.0.2 7.0.3 7.
) Ref m(4) m(11) m(20) m(27)	1 SPC 8 AGL 1.7 .3 0 AGL 1.4 .3 6 AGL 1.6 .3 4 AGL 1.6 .4 -2.0 .2 -2.5 .3 9 SPC 4 AGL -2.5 .3	4 SPC 0 SPC 6 SAD 2.2.4 4 AGL 1.4.3 0 AGL 1.3.3 -1.3.2 6 SAD 1.7.4 .2.2 5 SAD 1.1.4 .1.2	2 SPC	4 IRC 1.8 .4 -3.6 .4 M4 0 IRC 1.8 .4 M4 1 SAO 1.8 .3 K4 4 SAO 1.7 .4 -3.6 .4 MA 0 AGL 1.3 .3 M6 2 AGL 1.7 .4 M6	8 AGL 1.4 .3 8 AGL 1.6 .4 0 SAD .9 .3 -1.0 .2 7 SAD 1.2 .4 .2 .2 K2 6 SAD 1.5 .4 6 SAD 1.5 .4 M5 2 AGL 1.5 .3 8 SPC .9 .4 M5
(1950) Ref m(4) m(11) m(20) m(27)	2 18 AGL 1.7 .3 29 30 AGL 1.4 .3 32 6 AGL 1.4 .4 45 5 AG 1.6 .3 45 8 SPC 1.6 .4 45 24 AGL 1.6 .4 7.9 .4	30 14 SPC -1.4 .2 27 50 SPC 22 .4 24 AGL 1.4 .3 3 30 AGL 1.3 .3 -1.3 .2 23 .6 AGL 1.3 .3 -1.3 .2 24 II SAD 2.7 .4 .2 .2 .2 44 35 SAD 1.1 .4 .1 .2 .2 3 SPC 1.1 .4 .1 .2	49 12 SPC 3.3.2 -1.6.3 M5 55 36 SAO 1.4.4 -7.2 -1.1.2 -2.2.3 M6 55 36 SAO 1.3.4 -7.2 -1.1.2 -2.2.3 M6 56 6 18C 1.6.4 -2.0.4 -4.6.5 M5 49 54 AGL 1.5.3 4 50 0 AGL 1.5.3	44 54 1RC 1.8 .4 -3.6 .4 M4 15 0 1RC 1.8 .4 M4 5 41 5A0 1.8 .3 22 34 5A0 1.7 .4 3 44 5A0 1.5 .4 68 3 2 42 5A0 1.3 .4 0 0 AGL 1.3 .3 18 0 SAO 1.7 .4 75 6.4 86 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	45 18 AGL 1.4 .3 3 18 10 SAO 9 .3 -1.0 .2 M4 4 7 SAO 1.2 .4 2 .2 K2 15 15 18 AGL 1.8 .4 2 .2 .2 K2 49 6 SAO 1.5 .4 M5 50 42 AGL 1.5 .3 2 48 SPC .9 .4 .8 .4 .8 .4 .8 .4 .8 .4 .8 .4 .8 .4 .8 .4 .8 .4 .8 .4 .8 .4 .8 .4 .8 .4 .8 .4 .8 .4 .8 .4 .8 .4 .8 .4 .4 .8 .4 .8 .4 .8 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
Dec(1950) Ref m(4) m(11) m(20) m(27)	+46 8 1 SPC -2.7 .3 -19 2 18 AGL 1.7 .3 -12 29 30 AGL 1.4 .3 +60 32 6 AGL 1.4 .4 .4 +62 3 155 SAD 1.6 .3 +23 11 55 SAD 1.6 .4 +57 45 8 SPC +60 9 SPC +70 45 24 AGL -9 .4	- 3 30 14 SPC +32 27 50 SPC -10 25 46 SAD 2.2 .4 - 9 24 24 AGL 1.4 .3 - 3 30 AGL 1.3 .3 +52 21 9 SPC -13 23 G AGL 1.3 .3 +37 53 24 IRC 1.7 .4 - 0 24 11 SAD 1.1 .4 - 10 24 23 SPC 1.1 .4 - 10 24 25 SPC 1.1 .4	+15 49 12 SPC	+67 44 54 IRC 1.8 .4 -3.6 .4 M4 +22 15 0 IRC 1.8 .3 +5 22 34 SAO 1.7 .4 +5 22 34 SAO 1.7 .4 -3.6 .4 M4 +36 2 3 44 SAO 1.7 .4 -3.6 .4 M4 -3.6 .4 M4 +36 2 3 44 SAO 1.7 .4 -3.6 .4 M4 -3.6 .4 M4 +27 18 0 SAO 1.7 .4 -1.0 .4 M6	+55 45 18 AGL 1.4 .3 +62 3 18 AGL 1.6 .4 +34 18 10 SAD .9 .3 -1.0 .2 -40 4 7 SAD 1.2 .4 -26 15 18 AGL 1.8 .4 -22 49 6 SAD 1.5 .4 -23 50 42 AGL 1.5 .3 +7 22 48 SPC .9 .4 .2 .2 MS
(1950) Ref m(4) m(11) m(20) m(27)	46 8 1 SPC -2.7 .3 19 2 18 AGL 1.7 .3 12 29 30 AGL 1.4 .3 60 32 6 AGL 1.4 .4 60 32 6 AGL 1.6 .3 23 11 55 SAG 1.6 .4 -2.0 .2 -2.5 .3 75 6 9 SPC -2.5 .3	34.3 - 3 30 14 SPC -1.4 .2 46.0 +32 27 50 SPC -2.2 .4 31.0 - 9 24 24 AGL 1.4 .3 35.0 - 3 3 30 AGL 1.3 .3 16.2 +52 21 9 SPC -1.3 .3 50.0 +37 32 3 6 AGL 1.3 .3 50.0 +37 53 24 1RC 1.7 .4 28.7 - 0 24 11 SAO 1.1 .4 11.4 +36 44 35 SAO 1.1 .4 34.1 +26 45 23 SPC 1.1 .4	15 49 12 SPC	67 44 54 IRC 1.8 .4 -3.6 .4 M4 22 15 0 IRC 1.8 .4 M4 37 12 34 SAO 1.7 .4 G8 2 14 SAO 1.7 .4 G8 2 2 34 SAO 1.7 .4 G8 3 144 SAO 1.3 .4 -3.6 .4 M4 50 1.3 .3 0 0 AGL 1.3 .3 0 AGL 1.3 0 AGL 1.3 .3 0 AGL 1.3 0 AGL 1.3 .3 0 AGL 1.3 0	55 45 18 AGL 1.4 .3 12 3 18 AGL 1.6 .4 14 18 10 SAD .9 .3 -1.0 .2 10 4 7 SAD 1.2 .4 12 49 6 SAD 1.5 .4 13 50 42 AGL 1.5 .3 17 20 13 SAD .9 .4 18 4 .2 .2 .2 18 50 42 AGL 1.5 .3 17 22 48 SPC .9 .4 .8 .4

Supplemental Table Of Observations

SOCIAL CONTRACTOR CONTRACTOR (BOSSION) (BANKADA)

٩	- 46.1 - 46.1 - 52.4 - 60.4		66.69		156.9		159.4 153.4 151.1		1.55.8 1.60.3 1.39.3	
-	165.7 164.4 166.4 174.4 192.4	167.2 198.1 136.0	202.5 178.9 140.9 196.4	250.0 146.8 144.4 153.2	129.7 141.0 142.1 183.2 192.1	213.0 213.0 150.5	166.8 194.2 183.3 187.1 149.3	151.1 167.6 149.1 198.6	194.8 166.9 218.1 167.5 136.1	214.9 219.6 149.0
S	2 1 2 1 5 1	-\$-	111141	-S- -74	0 1 1 2 1 1 2 2 1 1 2 2 1 1 1 2 2 1 1 1 1 2 2 1	174		-S- -S- -+4	1 5 1 1 1 1	122
Comments			E0				60			EO
Names	DG 26139		DO 480	GC 3436	TAU PER DO 26438	6 ERI 24 PER	DO 496 SVS 102400 DO 9696	00 9709	00 507	
£					854 864	889 882	902			
TMSS	-10039 70038		34 50075	-40019E	50077 50079 -10042	-20038 30054	10035	40053	10037	-30027
AFGL	62575 62585 62595 42225 62605 42245	62615 42255 62625	42265 42275 42285 42295 62635	42305 62645 62655 3915	62668 42318 62678 42338 42348 42358 62688	42365 42365 42375	4239S 4240S 4241S 4242S 424S	42448 62718 62728 42448	42458 62738 42468 42488 42508	4455 42528 62748 62758
Type					H					
Spec	Z Z	}	M 72	χ Ω	65 6 K5 11 M6 11	K2 G K2 II	M	Σ Ω	K1 II	e E
m(27) Spec	2 Z	!	M2 M7	-3.0 .3 -2.3 .3	6. S. S. S	ე ∺	. M M 22	: :		M3 -2.2 .3 -2.5 .3
m(27)	úúú ú	ď.	e.	.5 -3.0 .3 -2.3 .3	2. 2. 4	. 2.5 .3 K2 G K2 I			6 .3 K1	.2 -2.5 .3
		8	e.	5 -3.0 .3 2 -2.3 .3	.1 .2 .3 .3 .1 .4 .1 .2 .7 .5 .4 .4 .7 .5 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7	2.5.3 K2 G K2 I	n 0 0		6 .3 K1	12.2
m(27)	. 4	e. 2.	e.	.6 .5 -3.0 .3 .9 .2 -2.3 .3	.1 .2 .2 .3 .3 .1 .4 .1 .2 .7 .5 .7 .5	.6.2 - 2.5.3 K2 G K2 I			6 .3 K1	.4 .2 -2.2 .3
) m(11) m(20) m(27)	.3 -2.4 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2	.33 .2	6. C.	-3.6 .5 -3.0 .3 -3.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	.4 .1.3 .5 -3.1 .4 M6 .1.3 .2 .2 .1.1 .2 K5	.5 .4 K2 I	4.0.6.6.0	.47 .22 .2 .44	-1.3.4 -2.6.3 .4 M1	. 4
(11) m(20) m(27)	3 -2.4 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2	5 .33 .2	6. C.	7 .5 -3.6 .5 -3.0 .3 9 .2 -2.3 .3 4 .3	4 .2 .2 .2 .1.1 .2 K5 4 -1.3 .5 -3.1 .4 M6 -1.3 .2 .2 .2 .2 .7 .5	1.6 .2 - 2. 3. K2 G	4 m m m m	. 7 . 2 . 2 . 2 . 7 . 1 . 2 . 2 . 2 . 2 . 2 . 2 . 2 . 2 . 2	-1.3 .4 -2.6 .3 M1	.6 .4 .6 .4 -1.4 .2 -2.2 .3
4) m(11) m(20) m(27)	2.2 + 6 57 34 SPC 4.7 + 8 28 50 SPC 5.4 + 6 12 12 SPC 0.0 - 1 29 42 AGL 0.0 + 6 48 54 SPC 4.7 - 14 12 3 SAC 1.5 .5 -2.4 .2 -2.8 .2	44 11.7 + 5 55 17 SPC -2.3 .2 44 23.0 -17 10 6 AGL 1.5 .3 45 54.0 +62 38 0 SPC3 .2	6 . 4 4 . 4 6 . 3 . 4 . 2	49 11.8 -41 10 6 SAO 1.7 .5 -3.6 .5 -3.0 .3 49 41.2 +39 57 48 SPC 49 44.3 +44 58 3 SPC9 .2 -2.3 .3 49 48.0 +27 43 12 AGL 1.4 .3	1 16 SPC	55 52.2 -23 48 22 SAO 1.6 .5 -1.6 .4 -2.5 .3 55 52.2 -23 48 22 SAO 1.6 .5 55 57.3 +34 59 3 SAO 1.1 .4	1.2 +10 40 25 SAD 1.9 .4 8.0 -13 8 30 AGL 1.8 .3 5.0 - 5 8 18 AGL 1.6 .3 3.0 - 7 54 12 AGL 1.6 .3 6.0 +38 44 30 AGL .8 .3 7 7 55 4 30 AGL .8 .3	1 18.0 +35 40 42 IRC 1.6 .47 .2 133.6 +10 44 1 SPC0 .22 .2 .2 1 37.5 +39 23 10 SPC0 .22 .2 .2 1 39.0 -15 24 0 AGL 1.7 .42 .9 .5	9 24 AGL -1.3 .4 -2.6 .3 0 48 AGL 1.3 .3 8 22 SAO 1.1 .4 0 12 AGL 1.4 .3	5 34.0 -24 13 30 AGL 1.5 .3 6 28.1 -26 38 12 SAO 1.6 .4 6 34.9 +41 18 34 SPC -2.2 .3 7 21.1 +36 56 32 SPC -1.4 .2 -2.5 .3

Supplemental Table Of Observations

۵	1.58.3 1.58.3 1.58.3 1.58.3 1.59.3	2000.000.000.000.000.000.000.000.000.00	1111111 0440101111111111111111111111111	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	111 11 1 6.00 1 10 10 10 10 10 10 10 10 10 10 10 10
-	150.2 210.9 142.5 144.2 146.1 166.0 179.0	218.4 228.0 2214.9 2214.9 216.3 187.7 191.4 151.1	155.5 155.5 156.4 156.4 196.8 222.5 132.5 158.3	164.3 178.7 171.5 183.9 195.4 142.3 153.4 153.0	22.20 20.20
sq0	1 1 1 5 1 1 1	60 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1411111111	EG 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5-1-1-2-1-4-1-4-1-1
Comments		w		ω ω	
Names	OME PER DO 9774 GC 3806 TW ER1 GC 3812	DO 534 IC 1904 GC 3911 SVS 100263	TW PER DD 9877 NGC 1303 SVS 295 DD 26985 DD 26985	63 ARI 00 566 00 567 00 27156 RU PER	RZ FOR IC 0337
£	947 955 949			101	
TMSS	40058 40059 -20039 50087	43	30060 70042 60118	20056 45 10043 50097	-30029
AFGL	42535 42548 42558 62768 42568 42568 42578 42598 42598	4685 42625 42635 42645 42655 42655 42665 62785 62785	4268S 6280S 4269S 478S 4270S 4272S 4271S 6281S	62825 62835 42735 42745 42745 42785 62845 62845 62855	•
Spec Type	M6 M1 G M6 M6 M6 M6 M6 M6 M6 M7 M6	ж х с	M2 E M5 5	K3 III M7 M3 M6~7E G	S
m(27)		6. 6.		0 6 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	5. 5. 6. 6.
m(20)				7 7	7 7
- 1		4. 4. 4. 4. 4. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.	1 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6		4 1 4 1 6 1 7
B(11)	•		1 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	o	બ.મ. જે બ
(11)	6. 1. 2. 4. 2. 1. 0. 1.	0.4. 6.1. 4.6. 6.1. 7.1. 6.1. 6.1. 6.1. 6.1. 6.1. 6	4 2. 4 2. 6 2. 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		2. 2. 2. 2. 2. 2. 4.1. 2.1. 2.1. 2.1. 2.1.

Supplemental Table Of Observations

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-	154.3 137.9 157.3 158.8 158.8 158.9 147.8 166.9	150.3 150.7 151.6 189.9 244.0 143.4 167.5 159.7	148.5 1742.8 1742.8 1744.9 1747.2 1762.9 1799.3	1940.7 1940.7 196.8 196.8 137.8 202.5 202.4 198.1	222.6 1743.9 1743.9 179.2 130.6 130.6 147.1
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Comments		9			
IR Names	AF TAU DO 27390 AF PER OU PER SVS 100325	DO 27623 BF CAM SU ERI V401 TAU	SHARP. 205 RU ERI T ERI DO 670	¥Z ERI	GC 4889 UV CAM DO 690 DO 10256 RV ERI
TMSS T	60123 40066 50105 20064	50109 40069 60130 50 40027E	-20046 -20047 10051	-10057	-30032 60138 10053 30070 -10060
AFGL	42888 5048 42898 62908 42918 62918 62928 42938	62968 62938 62938 62938 42998 43008 6328 6328	43033 43045 43055 43055 5335 5355 62965 62975 62965	629955 - 43085 - 43085 - 43105 - 43115 - 431125 - 431125 - 431155 - 43	43175 - 43165 - 43165 - 43165 - 43105 - 43205
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	1	ανν4α ∺	M1 M4E -2.6.3 -2.4.3 M4	2 ₹ 20	_
Spec	6. 6. 6. 6. 7. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8.	ανν4α ∺	. 6 . 3 . 4 . 4 . 4 . 4 . 4 . 4 . 4 . 4 . 4	M M M M M M M M M M M M M M M M M M M	M M M M M M M M M M M M M M M M M M M
) m(27) Spec	M. W. S.	ανν4α ∺	.2 .4 M .0 .2 .4 .5 .4 .3 .2 .2 .4 .3 M4		M.1.0 .2 M.7
(11) m(20) m(27) Spec	M39 .2 -1.9 .3 M6 -1.2 .2 -2.2 .3 M6 -3.9 .4 -3.3 .4 M5 -3 .2 -5 .5 .5 .5 M5	.3 .2 M8 1.7 .4 M5 2.6 .4 MB II	-3.2 .4 M4 -4.0 .4 -3.5 .1 -1.4 .2 -2.6 .3 -1.9 .2 -2.4 .3 M4	7. 4. 2 	.2 -1.0 .2 M7 M7 M7 M6 M7 M6 M7

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-	240.6 235.5 149.8 196.7 2002.8 156.0 155.0	173.6 207.2 140.8 152.5 153.4 153.4	2362 2362 244 245 256 266 267 267 267 267 267 267 267 267 26	58.0 64.8 64.8 634.2 632.2 233.1
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Comments				
Names	GC 5030 DO 724 GC 5082 DO 727 FV PER	IC 2047 GC 5151 DO 28164 SVS 100378	DO 10410 GC 5265 GG PER GQ PER RW ERI IC 0368 DH ERI EPS TAU RY CAM DO 787 DO 787 DO 10526 84 TAU GC 5538	A HO PER
Œ			1409	
TMSS	-30027E 54 -20050 56 50113	50116 40081 50117	40084 80010 -20055 40086 -10066 -30034 -30036 -30035 10063 10063 10063 30089 30089	40095
AFGL	5475 43235 63055 43255 43245 63065 43245 63065 63065 63075	63095 63105 5575 63115 63125 43315 43335 43335	43368 43388 43388 43388 43418 5788 63434 43448 43478 63138 63138 63138 63138 63138 63158 4358 4358 63158	63168 43558 43558 43558 43578 43588 43638 43638 43638
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ш(4)	4 4.6 4.4.	7.7.4.4.0.	4 m m m m m m m m m m m m m m m m m m m	
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950) Dec	99.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0	3.2. + 5.0. 1.0. 1.0. 1.0. 1.0. 1.0. 1.0. 1.0.	24.24.20.00.20.00.00.00.00.00.00.00.00.00.00.	2. 2. 4. 4. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.
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Supplemental Table Of Observations

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-	157. 160. 231. 186. 231. 220. 220.	175. 167. 184. 238. 203. 170. 173. 173.	167. 151. 221. 161. 152. 158. 236. 171.	201. 227. 191. 223. 181. 238. 167. 199.	226. 209. 212. 212. 186. 158. 153. 182.
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Comments					
Zames.	V420 PER DG 10700 GC 5762 DO 844 DG 852 GC 5794	DG 10739 DG 10735 T CAE IC 2094 GC 5853 DG 28671 DG 10784 IC 2100	2 AUR AU AUR TV AUR DO 28807	GC 6160 1 LEP GAM CAE DO 11024 V430 ORI	SVS 100453 GC 6350 DQ 11105 GC 6389
£	1509	1529	1551	1628 1634 1652	1684
TMSS	50125 30092 -30040 10069 -20061	30094 40098 -30037 E 30096 50129 30097	50132 50132 50132	-30041 -20065 -30041E 40112 67	20102
AFGL	43655 43665 63175 43675 43685 43695 43705 43715 43725	43755 43735 6315 43765 43775 43785 43785 43785 6375 6415	43845 43855 63185 43865 63195 63205 6555 6555 6685	6735 6775 43895 43895 6795 43905 6845 63225 63225	43938 43948 7018 43968 7038 63248 63258 63258 43988
Spec Type	MM X MX 0	M4 M3 M7	K3 111 CE S5,8	X X X 2 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Х Б Б Б Б Б Б Б Б Б Б Б Б Б Б Б Б Б Б Б
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m(11)	2. 4. 4.	e.	40 8 8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	4. 6.	r.
m(4)		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1.1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	7.0. 8.0. 7.0. 8.0. 4.0.4.0.0.	0844 06 4644 46
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Dec (1	+++1+11 4446	+ + + + 1 + + + + 1	++++ ++++ +++5 ++5 ++5 ++5 ++5 +	+ + + + + + + + + + + + + + + + + + +	1 1 1 + + + + + 1 + 2 1 2 2 2 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4
RA(1950)	26.0 59.0 13.2 20.0 25.0 55.0	53.0 56.0 31.7 52.0 10.2 14.8	16.9 255.0 251.0 21.4 7.9 19.0 21.0 35.2	10.0 7.7 7.7 224.0 38.2 27.0 36.4 57.0 1.9 6.9	2000 2000 2000 2000 2000 2000 2000 200
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Supplemental Table Of Observations

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-	162.2 180.4 161.4 158.2 174.0 178.0 228.0	255.7 233.7 233.7 1995.5 150.8 162.4 159.7 166.7	2201.6 201.6 201.6 201.0 160.1 171.2 171.2	2033.3 2033.3 2039.9 2039.9 204.9 207.9	209.5 207.8 168.4 1528.9 151.7 166.4 156.7 156.7 156.7
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Comments				Ü	
Nomes	DO 29110 DO 29113 DO 29147 SVS 6165	T COL DO 1065 DO 29148 DO 29181 DO 29204 DO 29202 GC 6602	DO 1094 GC 6672 AC AUR W AUR EG AUR	DO 11304	SVS 100502 DG 29442 GC 6894
£			1799		1874
TMSS	50140	-30045E 10083 70061 60156 50143 50143	73 -10092 50144 40127 30113	30118	40133 -30045 50147
AFGL	63275 63285 63285 63295 7185 63395 7195 7265 7275	440038 440048 440058 440058 440068 73318 73318	63328 63328 440098 74108 741138 74138 74138 74138 74188 74188	63335 44116S 44117S 6334S 6336S 6336S 6336S 6337S 6337S	63398 63398 642398 642218 634228 634238 634238 634238 634248 63418 84288 84288
Spec Type	M W2 CA 00,3	MSE C4,4 M6 M2 M6 S4.1	MS III MS E MS E MG E MG E MG E MG E MG E MG E	2	M2 11 M0 11 M6 111
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27)	-1.7.2 -1.6.2 8.2 -2.9.4			ຕ ຕ	
m(27)	7.7 7.6 7.8 8.2 8.4 4.	۵. ۲. ۲. و.	4. r.e. 4.	ય	4. 8. 2. 2. 6. 2. 8. 8.
(11) m(20) m(27)	. 0 . 2 - 1 . 7 . 2 - 1 . 6 . 2 - 1 . 6 . 2 - 1 . 8 . 2 - 2 . 9 . 4	. 1 . 4 . 5 . 4 . 5 . 5 . 5 . 5 . 5 . 5 . 5	4. r.e. 4.	.2 .4 -1.2 .2 .5 .4 -2.0 .2 .4 .1.2 .2 .1 .1.2 .2 .1 .1 .2 .2 .2 .1 .1 .3 .2 .3 .3 .	3 . 4 . 1
Ref m(4) m(11) m(20) m(27)	FIR SPC FIR IRC 1.3.40.2 -1.6.2 IRC 1.0.4 -1.8.2 AGL 1.6.4 -2.9.4 AGL 1.4.3 -2.9.4 IRC 1.4.3	AGL 1.6 .5 -1.1 .4 AGL 1.6 .5 SAD 1.0 .3 IRC 1.0 .4 .4 .2 SAD 1.6 .4 .4 .2 SAD 1.6 .4 AGL 1.6 .2 AGL 1.2 .3	AGL .6.4 -1.4.2 SAD 1.4.4 SAC 1.4.4 SAC 1.4.4 SAC 1.4.4 SAC 1.5.4 SAC 1.5.4 SAC 1.5.4 SAC 1.7.4 .3 CIO 1.7.4 SAC 1.8.4 -3.8.4	FIR AGL SAO AGL AGL FIR FIR FIR FIR FIR FIR FIR FIR	AGL3.42.9 . SAO 1.4.4 SAO 1.8.4 -1.2.3 -1.4.2 IRC 1.8.4 SAO 1.6.4 FIR FIR -1.8.2 -2.9 .
Ref m(4) m(11) m(20) m(27)	46 14 14 FIR	3 45 30 SAGL 3 45 30 SAG 7 19 24 AGL 3 39 39 SAG 1 0 .3 4 0 12 IRC 1 0 .4 1 2 6 SAG 1 1 6 .4 1 2 6 SAG 1 4 .4 1 5 5 5 4 FIR 1 5 5 5 4 FIR 1 7 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	33 53 12 AGL .6 .4 -1.4 .2 1 8 31 SAO 1.4 .4 10 22 21 SAC 1.4 .4 0 18 18 AGL 1.6 .4 50 5 0 IRC 1.5 .4 36 51 34 CIO 1.7 .4 .3 33 34 24 AGL 1.8 .4 -3.8 .4	34 17 52 FIR 0 3 42 AGL 31 28 25 SAO 42 39 30 AGL 29 17 2 FIR 6 55 49 42 FIR 4 45 56 FIR 4 2 30 FIR 1.2 .2 .3 .3 .	17 42 AGL3.4 -2.9. 1 5 23 SAO 1.4.4 5 24 3 SAO 1.8.4 0 33 12 IRC 1.2.3 1 30 11 SAO 1.6.4 1 2 12 FIR -2.9.
ef m(4) m(11) m(20) m(27)	6 14 14 FIR 4 4 43 FIR 7 24 24 IRC 1 22 12 AGL 1 3 30 AGL 5 45 42 IRC 1 4 .3 -1.7 .2 -1.6 .2 -1.6 .2 -1.6 .2 -1.7 .2 -1.6 .2 -1.3 .4 -1.6 .2 -1.6 .2	11 36 AGL 45 30 SAG 19 24 AGL 10 3 40 12 IRC 10 3 40 12 IRC 10 3 40 12 IRC 10 4 42 25 SAG 10 4 42 47 SAG 14 18 AGL 15 3 16 4 17 6 18 6 19 7 10 8 10	3 53 12 AGL . 6 .4 -1.4 .2 1 50 12 FIR -1.4 .2 1 50 12 FIR -1.4 .4 0 18 18 AGL 1.6 .4 0 18 18 AGL 1.5 .4 0 20 36 IRC 1.8 .4 -3 34 24 AGL 1.8 .4 -3.8 .4	1 28 25 SAO 1.9 .42 .4 -1.2 .2 2 39 30 AGL 2.3 39 30 AGL 2.0 .2 .4 -2.0 .2 .6 52 48 AGL 2.5 .4 -1.6 .2 6 52 FIR 4 5 56 FIR 4 5 56 FIR 7.3 .2 -3.3 .	6 17 42 AGL3.4 -2.9. 4 23 6 FIR -4.4 5 24 3 SAO 1.4.4 6 33 42 AGL 1.2.3 3 33 13 FIR 1.8.4 4 52 54 IRC 1.8.4 1 30 11 SAO 1.6.4 4 12 12 FIR -2.9.

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-	153.1 138.3 147.6 207.6 229.5 195.8 185.1	153.0 143.7 152.0 173.7 147.3 160.0 175.0 191.6	185.6 2003.5 2003.5 2227.9 148.4 172.6 151.7 228.2 228.2	194.0 153.6 171.8 171.8 151.8 198.2 207.3 207.3	200.4 200.4 2004.5 1788.7 179.6 150.6 200.9 200.9
ops	#11#111141	2 4 4 1 1 1 1 1 1 1 2	111111411	2711111111	
Comments	O W				
SOEON	SVS 100501 HFE 7 SZ LEP PHI2 ORI SVS 100651 DO 11422	IC 2133 GC 7068 DG 29533 FX ORI	DZ TAU 51 ORI RT LEP DO 29598 GC 7167 DO 11538	EL TAU NUU AUR DO 1329	DO 1340 DO 11744 DO 1352
£	1844	9 9 9	1963	2012	2113
TMSS	80011 -30046 10091 -40041E	70065 50150 -30048 10095	83 -20077 60158 -30053E 40139	0096 44104 06	20128 -10104 95
AFGL	63438 7848 44265 63448 44297 44308 44315 63458	63465 63465 63485 63485 44335 63505 63505 44375 8088	44439 63515 635105 635105 6444105 644435 63525 644435 6465	44508 63538 82538 8278 63548 63558 83338 83358 83358	6356S 838S 844S 4455S 63537S 6359S 44659S 44558S 44558S
Spec Type	MO G C6.4 K0 IIIBP	M M M M M M M M M M M M M M M M M M M	M6 111 M9 M9 M3 M3	M6.5 M4	M1 M7 M4 K2 III
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m(27)			-2.6	2.2	
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Dec(1950) Ref	59 3 1 FIR 75 0 58 18 AGL 65 5 35 FIR 3 50 18 AGL 25 46 9 SAD 9 6 30 IRC 4 56 38 FIR 21 52 14 SAD	59 23 44 FIR 69 23 54 SPC 60 36 1 SPC 35 36 14 FIR 65 40 25 SAD 51 38 30 IRC 27 58 35 SAD 14 48 36 SAD 20 48 O	21 58 24 AGL 1 27 7 SAD 1 33 51 FIR 23 43 6 IRC 64 44 59 SAD 33 26 47 SAD 61 17 52 SPD 61 17 52 SPD 23 39 46 SAD 15 33 12 AGL	13 11 12 1RC 39 31 12 5PC 0 12 54 AGL 61 31 0 AGL 10 26 56 FIR 10 2 6 57 SAD 10 2 6 7 SAD 11 28 59 AGL 12 8 9 AGL	6 43 45 FIR 2 18 42 AGL 6 45 24 AGL 20 17 6 1RC 34 29 12 FIR 31 28 7 FIR 63 10 55 SPC 1 6 50 SAC 10 53 4 29 SAC 3 4 29 SAC
RA(1950) D	5 33 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	35 49.00 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	46 30 30 40 40 40 40 40 40 40 40 40 40 40 40 40	พเขาพายาทาง พับขายาทาง พับขายาทาง

Supplemental Table Of Observations

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-	138.3 201.7 197.7 177.2 225.6 205.6 199.7 240.0	166.6 2358.3 2358.3 2232.3 211.0 211.0 145.3 148.9 141.8	189.0 224.9 224.9 140.8 182.7 182.7 221.5 177.6 238.4	191.5 1251.9 145.6 2210.6 223.2 171.8	238.2 224.5 222.9 1926.4 169.7 197.8 155.7 198.5
ops		111101111	11-1-1-1	1-	111121111
Comments					
Names	DO 29860 DO 1365 DR ORI GC 7630	RS AUR NGC 2152 GC 7680 DO 1394	GC 7841	GC 7997 GC 8049 DO 12069	EH CMA SVS 102505 GC 8108 DO 12124 DO 30267 DD GRI GC 8244
Æ	2078	2140	2183	2242	2268 2268 2269 2269
TMSS	10102 10102 10104 -30061E	-30053	10110	-20089 40154	-30056 -20090 -10115 10114 50162 -10120
AFGL	4461S 855S 4460S 6360S 4462S 4662S 4663S 861S 861S	44668 44648 44688 44688 63618 63618 63628 63638 63648	63665 63675 63675 63685 44735 63695 44745 8875 8875	63715 44765 63725 8995 44795 63735 44865 63745 44815	44835 44885 44885 44885 63755 63755 44895 63755 63755 63755
Spec Type	M M M M K S . S . S . S . S	M 4-6E S S G EE	, K 6	% X %	M8 1111 M1 G M0 G M6 S K5
m(27)					
m(20)	1.1. viv. o. s.a. s.	4 1 11 1 0 8 6 6 7 6 9 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	211 1 1 61 ôĉ ô 8 ôë c. c. c. 4.5	2. 0. 1. 1. 8. 1. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
a(11)	2. 4.	4. 0.1-			
m(4)	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 4 0 4 4 0	6 6 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6		2
RA(1950) Dec(1950) Ref	5 58 15.6 +75 35 17 SAO 5 58 34.0 + 6 1 42 AGL 5 58 45.0 +10 40 42 IRC 5 58 57.0 +34 16 11 FIR 5 59 20.0 + 1 51 0 AGL 5 59 27.1 + 8 27 6 EIC 5 59 27.5 -33 54 39 SAO 5 59 31.0 - 2 56 12 AGL 5 59 31.0 - 2 56 12 AGL	6 0 0.0 +46 17 42 AGL 6 1 14.6 -26 16 59 SAO 6 1 30.0 - 3 57 0 IRC 6 2 16.6 - 6 45 26 FIR 6 2 20.0 +68 48 35 AGL 6 2 48.6 +65 12 1 FIR 6 3 31.3 +72 18 17 SPC 6 5 35.8 +28 49 51 FIR	6 5 41.9 +21 30 58 FIR 6 6 7.0 -18 17 12 AGL 6 6 21.9 +73 20 33 FIR 6 6 42.0 -14 48 48 AGL 6 6 51.9 +28 52 24 FIR 6 7 18.1 -14 34 29 SAG 6 8 2.0 +34 52 0 AGL 6 8 10.0 -31 42 42 AGL 6 8 24.1 - 2 16 22 FIR	6 9 48.0 +19 10 15 FIR 6 10 43.5 +68 47 5 FIR 6 10 45.0 - 2 13 6 AGL 6 12 59.3 -20 15 20 SAG 6 13 59.0 -15 33 54 AGL 6 14 16.4 +39 29 36 SAO 6 14 18.6 - 3 10 7 FIR 6 14 11.3 +35 37 3 SAO	6 15 16.0 -31 1 0 1RC 6 15 28.2 -16 47 45 SAD 6 16 32.9 -15 0 13 SAD 6 17 13.1 +14 40 26 SAD 6 18 16.7 +65 0 36 SAD 6 18 53.0 +13 15 0 1RC 6 20 36.0 +59 11 30 AGL 6 21 13.8 - 9 50 51 SAD 6 21 15.3 +12 46 28 FIR

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-	222034 22034 22036 22036 22036 2406 2406 2406 2406 2406 3406 3406 3406 3406 3406 3406 3406 3	168.4 226.8 210.4 146.4 193.3 208.0 2219.6 228.0	200 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
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Comments	ü		w		
Names	GC 8252 GC 8267 DO 1559 DO 1560	GC 8356 DO 1598 GC 8439 GC 8443	GC 8483 GC 8490 GC 8498 AI AUR GC 8559	DO 1646 GC 8574 CX MON PS12 AUR GC B664	DO 12410 DO 12420 DO 1712 GM CMA V372 MON GC 8756 DO 36758
Œ.	2311	2335 2355 2367	2393	2363 2427 2440	2458 2469
TMSS	-30059 107 -30061 108	112 113 -10124 -10126 -20095 50168	-40051E -30063 -30068E -30064 30155 -10130	117 80014 118 -20097 40160	30160 20156 20156 10132 -20101 123 -10137 70070
AFGL	449925 - 449925 - 449935 - 9305 - 9305 633805 633805 633805 633805 63805 63815	44955 9395 44975 63825 63825 44995 45005 9535	63845 45025 - 45035 - 45035 - 45055 - 45075 - 9605 45095 - 8635 -	45105 45:15 63855 9735 9745 45135 45125 9785 45125	45165 48185 45185 45205 45215 9925 45225 45225 45235
Type					
Spec	X	M X MMXM R C A O O 4 R	X2 M2 III M4 M5 III	M	MA 1 11 1 MA 1 11 1 MA 1 11 1 MA 1 11 1
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4) m(11) m(20) m(27) Spec	7 SAO 2.2.4			.6 .4 .2 .3 .3 .5 .9 .5 .5 .9 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	.8 .3 .4 .43 .5

Supplemental Table Of Observations

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-	230.2 202.0 200.3 201.9	201.2 205.1 211.9 201.3 167.3	222.0 211.1 211.9 207.6	227.2 183.1 214.1 202.0 199.4	247.0 232.9 238.2 132.7 212.5 231.4	0070	206.2 2217.6 2226.8 219.2 217.5 228.1	r -manoranto
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£	2478	2487		2512		2591	2639	2650 2655 2663
TMSS	-20103	50172	126 127 10139	30167 129 10141 20160 20162	− −	-40054E 60177 50173	30170 -10144 -10145 -20116	20169 -10146 -20117 -10148 30173
AFGL	4524S 6386S 4525S 6387S	63888 45278 63898 63908 45298 63918	6392S 4530S 4531S 4532S	1016S 4533S 4534S 4535S 4535S	1030S 4539S 1032S 6393S 4541S 6394S	4544S 4543S 6395S 4545S	1048S 4546S 6396S 4544S 1054S 4549S 4550S	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
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20) m(27) S	.9.2 K		.9.2 M5 .1.2 C		.3 .2 .8 .2 -3.0 .3 M5	C8. 73 73 .4 .2 M7	4. 2. 2. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8.	.2.6 MM K3.7. 3.4 MO
) m(11) m(20) m(27) S	.3 -1.9.2 K1	.3 -1.9.2 M5 -1.5.2 -1.5.2 K1 -2.1.2 K1	.3 M5 .4 -1.1.2 C.4.	E. 4. 7. 7. 4. 7. 7. 4. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7.	.3 .3 -1.3 .2 .4 -2.8 .2 M5	.3 C8. .4 .1 .4 .2 K3 K7 .4 .4 .4 M7	5 MS	.4 F7. .4 F7. .4 F7. .4 F7. .5 F7. .6 MMB .7 F7. .8 MB .9 F7. .9 MB .9 MB .9 F7. .9 MB .9
(11) m(20) m(27) S	M1 -1.9.2 K1 -1.6.2	-1.9 .2 MS -1.5 .2 L -2.6 .2 K1	.3 .3 M5 .5 .4 -1.1 .2 S5,	4 A A A A A A A A A A A A A A A A A A A	3 -1.3.2 -8.2 M5	3 C8. 4 F3 F3 4 M7	4 4 MS5	.5 .4 .5 .4 .5 .4 .5 .4 .4 .3 -1.1 .4 .7 .3 -2.3 .4 -3.2 .6 MO .1 .3 MO .9 .4 -4.3 .4 MO
950) Ref m(4) m(11) m(20) m(27) S	6 11 SAO 1.4 .4 -1.9 .2 M1 8 54 FIR -1.2 .3 -1.6 .2 K1 6 55 FIR -1.6 .2	3 30 FIR -1.9 .2 M5 31 EIC 1.4 .3 -1.5 .2 M5 11 FIR -2.6 .2 K1 37 FIR -2.1 .2 K1 3 7 FIR -2.1 .2	9 24 FIR -1.9 .2 M5 5 5 SAO 1.3 .3 M5 5 6 IRC 1.5 .4 -1.1 .2 S5,	3 54 AGL 1.3 .3 9 56 SAG 1.7 .4 6 30 IRC 2.1 .5 M6 7 1 SAG 1.3 .4 1 30 IRC 1.8 .5 M4	9 0 AGL 1.5 .3 M7 2 24 IRC 2.0 .5 M7 2 24 AGL 1.5 .3 -1.3 .2 1 SPC 1.6 .4 -1.8 .2 M5 8 4 FIR	8 4 SAO .6.3 C8, 7 46 SAO 1.6.4 K3 9 31 FIR -1.4.2 M7	7 6 IRC 1.1 .4 -2 M5 7 29 FIR -1.4 .2 M6 42 IRC 2.1 .5 M6 8 58 SAO .8 .3 M7 4 2 M7 4 2 M7 4 2 M8 3 M2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	8 43 SAO 1.5 .4 5 4 SAO 1.5 .4 5 4 SAO 1.5 .4 1 30 IRC 1.2 .3 3 0 IRC 1.4 .3 -1.1 .4 6 54 AGL -2.3 .4 -3.2 .6 8 13 SAO 1.7 .3 8 24 AGL 1.1 .3 8 24 AGL 1.1 .3 8 42 AGL 1.6 .3 MO MO MO MO MO MO MO MO MO MO
50) Ref m(4) m(11) m(20) m(27) S	20 6 11 SAO 1.4 .4 -1.9 .2 M1 11 18 54 FIR -1.2 .3 -1.6 .2 K1 11 26 55 FIR -1.6 .2	2 23 30 FIR -1.9 .2 MS	0 39 24 FIR -1.9 .2 M5 1 35 5 SAO 1.3 .3 M5 0 45 6 IRC 1.5 .4 -1.1 .2 S5,	16 13 54 AGL 1.3 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4	9 0 AGL 1.5 .3 M7 2 2 4 ISC 2.0 .5 M7 2 2 4 AGL 1.5 .3 -1.3 .2 M5 1 12 ISC 1.6 .48 .2 M5 8 4 FIR	42 18 4 SAO .6.3 C8, 57 37 46 SAO 1.6.4 K3 9 19 31 FIR -1.4.2 M7 47 39 54 IRC 1.6.4 M7	8 31 30 AGL 1.6 .3 6 7 6 IRC 1.1 .4 4 7 29 FIR 4 16 42 IRC 2.1 .5 5 43 54 AGL 1.6 .3 5 38 58 SAD .8 .3 4 0 55 SAD 1.5 .4 M15 M2 M3 M3 M4 136 SAD 1.5 .4 M15 M3 M3 M3 M3 M3 M3 M3 M3 M3 M4 136 SAD 1.5 .4 M15 M3 M3	20 38 43 SAO 1.5 .4 5 14 54 SAO 1.5 .4 15 54 AGL 1.2 .3 16 31 30 IRC 1.5 .4 9 53 0 IRC 1.4 .3 -1.1 .4 68 6 54 AGL 3 -2.3 .4 -3.2 .6 M0 55 58 24 AGL 1.1 .3 9 15 47 SAO 1.9 .4 40 58 42 AGL 1.6 .3 61 28 36 AGL 1.6 .3
950) Dec(1950) Ref m(4) m(11) m(20) m(27) S	3.1 -20 6 11 SAO 1.4 .4 -1.9 .2 M1 3.2 +11 18 54 FIR -1.9 .2 K1 0.1 +13 16 48 SAO 1.2 .3 -1.6 .2 K1	0.6 +12 23 30 FIR -1.9 .2 M5 0.4 + 8 5 31 EIC 1.4 .3 -1.5 .2 5.1 + 0 28 11 FIR -2.6 .2 0.7 +12 24 53 FIR -2.6 .2 K1 4.2 -10 33 7 FIR -2.1 .2	8.0 -10 39 24 FIR -1.9 .2 M5 6.0 + 1 35 5 SAO 1.3 .3 A5 5.0 + 0 45 6 IRC 1.5 .4 -1.1 .2 S5,	9.0 -16 13 54 AGL 1.3 .3 5.8 +32 39 56 SAC 1.7 .4 9.0 - 1 36 30 IRC 2.1 .5 4.4 +12 7 1 SAC 1.7 .4 3.5 +15 8 13 SAC 1.3 .4 6.0 +18 41 30 IRC 1.8 .5 M44	2.0 -37 9 0 AGL 1.5 .3 5.0 -21 54 24 IRC 2.0 .5 8.0 -27 42 24 AGL 1.5 .3 0.1 +81 21 1 SPC -1.3 .2 0.0 + 0 51 12 IRC 1.6 .4 -18 .2 M5 8.0 -20 8 4 FIR	2.2 -42 18 4 SAO .6 .3 C8, 7.1 +57 37 46 SAO 1.6 .4 K3 0.8 + 9 19 31 FIR -1.4 .2 M7 2.0 +47 39 54 IRC 1.6 .4 M7	3.0 + 8 31 30 AGL 1.6 .3 M5 2.0 +26 7 6 IRC 1.1 .4 —1.4 .2 M6 6.0 -14 16 42 IRC 2.1 .5 M6 4.0 +15 43 54 AGL 1.6 .3 M2 9.1 - 5 38 58 5A	8.6 +20 38 43 SAO 1.5 .4 F7. 7.5 - 5 14 54 SAO 1.5 .4 8.0 +41 54 54 AGL 1.2 .3 6.0 -16 31 30 IRC 1.4 .3 -1.1 .4 5.0 - 9 53 0 IRC 1.4 .3 -1.1 .4 7.4 +31 28 13 SAO 1.7 .3 7.7 + 9 15 47 SAO 1.9 .4 8.0 +51 28 36 AGL 1.6 .4 MOS 1.9
50) Dec(1950) Ref m(4) m(11) m(20) m(27) S	40 53.1 -20 6 11 SAO 1.4 .4 -1.9 .2 M1 41 3.2 +11 18 54 FIR 41 10.1 +13 16 48 SAO 1.2 .3 -1.6 .2 K1 41 18.6 +11 26 55 FIR	.6 +12 23 30 FIR -1.9 .2 M5	44 28.0 -10 39 24 FIR -1.9 .2 M5 44 36.0 + 1 35 5 SAO 1.3 .3 M5 45 2.0 + 0 45 6 IRC 1.5 .4 -1.1 .2 C C 45 42.2 + 5 35 54 SAO 1.7 .4 -1.1 .2 S5,	.0 -16 13 54 AGL 1.3 .3 .8 +32 39 56 SAC 1.7 .4 .0 -1 36 30 IRC 2.1 .5 .4 +12 7 1 SAC 1.7 .4 .5 +15 8 13 SAC 1.3 .4 .6 +18 41 30 IRC 1.8 .5 M44	2.0 -37 9 0 AGL 1.5 .3 5.0 -21 54 24 IRC 2.0 .5 8.0 -27 42 24 AGL 1.5 .3 0.1 +81 21 1 SPC -1.3 .2 0.0 + 0 51 12 IRC 1.6 .4 -18 .2 M5 8.0 -20 8 4 FIR	52 52.2 -42 18 4 SAO .6 .3 52 57.1 +57 37 46 SAO 1.6 .4 53 20.8 + 9 19 31 FIR 53 22.0 +47 39 54 IRC 1.6 .4 .7 M7	0 + 8 31 30 AGL 1.6 .3 .0 + 26 7 6 IRC 1.1 .4 -1 M5 .2 - 4 7 29 FIR -1.5 -1.4 .2 M6 .0 - 14 16 42 IRC 2.1 .5 M6 .0 + 15 43 54 AGL 1.6 .3 M2 .1 - 5 38 58 SAO .8 .3 M2 .0 - 15 34 24 IRC 1.8 .4 M5 .0 - 15 34 24 IRC 1.8 .4 M5 .0 + 15 36 SAO 1.3 .5 K3	1 8.6 +20 38 43 SAD 1.5 .4 1 37.5 - 5 14 54 SAD 1.5 .4 1 48.0 +41 54 54 AGL 1.2 .3 1 56.0 -16 31 30 IRC 1.4 .3 -1.1 .4 2 5.0 -9 53 0 IRC 1.4 .3 -1.1 .4 2 34.0 +31 28 13 SAD 1.7 .3 -2.3 .4 -3.2 .6 M0 2 45.0 +55 58 24 AGL 1.1 .3 2 45.0 +55 58 24 AGL 1.1 .3 2 54.7 + 9 15 47 SAD 1.9 .4 3 28.0 +51 28 36 AGL 1.6 .3

Supplemental Table Of Observations

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89E8Z	DO 1935 IC 2176 AM GEM R CMI	MX CMI MW MON UZ GEM VX GEM SVS 100830 52 GEM GC 9590	DO 12910 GC 9698 DU CMA DO 2097 GC 9740	65 AUR 56 GEM 11 CMA 66 AUR	DO 12990 WZ CAM HM AUR GC 9985
£		2730 2725 2729	2765	2793 2795 2805	2830
TMSS	30176 -20119 -10150 10154 -30077	20174 10156 -20123 20176 151	40171 -10158 -20127 154 -30084 -10159	40174 20178 -20128 40175	40176 -30089 80017 40178 70076
AFGL	10668 45628 45638 10688 45648 45658 45678 63978	45695 45705 45725 45745 10885 45755 45755 45765 10895	45798 10978 45808 11008 45828 45818 45858 45888 45888 45888	45885 45895 45905 45925 45915 45915 45935 45935 45955	45985 45995 45995 63985 11195 11215 112005 11265 64008
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27)	r. 8.	•	κ. ⊢	HH H	8. 3 8. 3 8. 3 8. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4.
m(27)	3.1 .5 3.0 .7 -2.7 .3	•	κ. ⊢	2.8.5 G8 I M0 I 1.2 S	1.9 .2 -2.8 .3 M6 M6 M77 X2 -2.8 .3
(11) m(20) m(27)	1.1.4 -3.1.5 1.3.4 -3.0.7 1.1.4 -2.0.7 .9 C -2.7.3	1.3.4 M9 C7,	κ. ⊢	-2.8.5 G8 I MO I	M3 M7 -1.9.2 -2.8.3 M6 M7 X2 -1.4.2 -2.8.3
(4) m(11) m(20) m(27)	.0.4 -1.1.4 -3.1.5 -1.3.4 -3.0.7 -5.3 -1.1.4 -3.0.7 -6.3 -9.C -2.7.3	SE . 4 . 1 . 3 . 4	.6 .3 M6 .5 M6 .5 M6 .5 M6 .5 M5 .4	.9 .4 .2 .8 .5 .68 I .8 .5 .68 I .9 .6 .41 .2 .2 .8 .5	M3 .6 .4 .7 .3 .6 .4 .9 .5 .9 .4 .0 .5 .0 .5 .0 .5
950) Ref m(4) m(11) m(20) m(27)	4 6 AGL 1.0 .4 -1.1 .4 -3.1 .5 2 36 AGL 2.3 .4 -1.3 .4 -3.1 .5 2 24 IRC 1.5 .3 -1.1 .4 -3.0 .7 2 24 IRC 1.5 .3 -1.1 .4 -3.0 .7 6 16 SAC 1.6 .3 6 16 SAC 1.7 .4 .9 C -2.7 .3 8 5 SPC 7 .4 .9 C -2.7 .3	5 4 4 4 4 4 1.8 .4 -1.3 .4 9 54 4 4 4 1.8 .4 -1.3 .4 9 42 4 4 4 1.2 .4 1.2 .4 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3	1 35 AGL 1.6 .3 M6 5 21 SAD 1.8 .4 K2 5 48 AJL 1.3 .3 M6.5 0 12 18C 1.6 .5 M6.5 7 30 SAD 1.9 .4 M5 8 57 SAD 1.6 .4 M5 6 0 AGL 1.4 .3 M5	1 23 SAU 1.6 .4 -2.8 .5 G8 I 2 23 SAU 1.6 .4 MO I 2 23 SAU 1.6 .3 MO I 7 36 A5L 1.6 .3 MR2 9 9 SAU 1.3 .3 -1.0 .41 .2 S 1 48 A5L 1.8 .3 -1.0 .41 .2 S 6 14 SAU 1.7 .5 KO I	### 35 19C 1.7 .4 ### 42 19C 1.6 .4 ### 6 ASL 1.3 .3 1 27 SF1 7 4 ASL 1.7 .3 6 18C 1.7 .3 7 4 ASL 1.7 .3 8 15 SFC 1.9 .4 1 15 SFC 1.9
0) Ref m(4) m(11) m(20) m(27)	6 AGL 1.0 .4 -1.1 .4 -3.1 .5 -1.3 AGL 1.5 .3 -1.1 .4 -3.1 .5 -1.3 AGL 1.5 .3 -1.1 .4 -3.0 .7 -3.0 .7 -3.5 AGL 1.6 .3 -1.1 .4 -3.0 .7 -3.5 SPC 5 SPC 5 SPC 3 SAO .7 .4 -9 C -2.7 .3 3 SAO .7 .4	12 AGL 2.1 .4 -1.3 .4	35 AGL 1.6.3 M6 21 SAD 1.8.4 W2 48 A3. 1.3.3 10 SAD 1.9.5 30 SAD 1.9.5 35 SAD 1.9.4 M5 57 SAD 1.6.4 0 AGL 1.4.3	18 A5L 1.9 .4 -2.8 .5 G8 I 23 SAD 1.6 .4 M0 I 2 SAD .8 .3 .3	35 19C 1.7 .4 M7 6 ASL 1.3 .3 -1.9 .2 -2.8 .3 M7 7. SEJ 1.7 .3 -1.9 .2 -2.8 .3 M6 0 18C 1.6 .4 M7 0 18C 2.0 .5 M6 15 SEC 1.9 .4 M7 14 SEC -0.2 -1.4 .2 M8
950) Dec(1950) Ref m(4) m(11) m(20) m(27)	12 44 6 AGL 1.0 .4 -1.1 .4 -3.1 .5 32 32 30 AGL 1.5 .3 .4 -3.1 .5 28 22 30 IRC 1.5 .3 -1.1 .4 -3.0 .7 28 22 30 IRC 1.5 .3 -1.1 .4 -3.0 .7 25 80 IRC 1.5 .3 -1.1 .4 -3.0 .7 27 .8 3 SAC 1.7 .4 .9 C -2.7 .3 27 48 3 SAC 1.7 .4 .9 C	7 40 12 AGL 2.1 .4 -1.3 .4 -1.3 .4 19 42 AGL 2.6 .4 -1.3 .4 19 42 AGL 2.6 .4 17 44 0 42 IRC 1.2 .4 0 42 IRC 1.7 .4 0 42 IRC 1.7 .4 -1.3 .4 0 42 IRC 1.7 .4 0 42 IRC 1.7 .4 0 42 IRC 1.7 .4 17 .4 0 42 IRC 1.7 .4 1	55 51 35 AGL 1.6 .3 6 35 21 SAG 1.8 .4 76 15 48 AJL 1.3 .3 17 10 12 18C 1.6 .5 18 20 36 SAG 1.9 .4 11 22 7 SAG 1.8 .5 10 48 57 SAG 1.6 .4 85 36 0 AGL 1.4 .3	35 0 18 A5L 1.9 .4 -2.8 .5 G8 I 20 32 23 SAJ 1.6 .4 20 32 23 SAJ .8 .3 25 6 C A5L 2.3 .3 43 7 35 A5L 1.6 .3 44 50 39 A5L 1.3 .3 -1.0 .4 -1.2 S 64 14 48 A5L 1.8 .3 35 40 0 A5L 1.6 .3 40 46 14 SAJ 1.7 .5	### 35 IFC 1.7 .4 M3 M3 M4 M4 M5 M4 M5 M5 M5 M5
50) Dec(1950) Ref m(4) m(11) m(20) m(27)	2.0 +12 44 6 AGL 1.0 .4 -1.1 .4 -3.1 .5 7.0 +33 21 0 AGL 1.0 .4 -1.1 .4 -3.1 .5 0.0 +32 32 30 AGL 1.5 .3 -1.3 .4 -3.0 .7 5.0 +28 22 30 IRC 1.5 .3 -1.1 .4 -3.0 .7 5.0 +36 58 35 AGL 1.6 .3 -1.1 .4 .9 C -2.7 .3 3.0 -27 48 3 SAO .7 .4	5.0 + 7 40 12 AGL 2.1 .4 5.0 + 7 40 12 AGL 2.1 .4 6.0 - 1 19 42 AGL 2.6 .4 6.0 - 1 19 42 AGL 2.6 .4 6.0 + 17 43 54 IRC 1.2 .4 6.0 + 14 40 42 IRC 1.7 .4 6.6 - 22 35 12 AGL 2.0 .3 6.5 + 24 58 25 SAO 1.5 .4 6.5 + 24 58 25 SAO 1.5 .3 6.5 + 24 58 25 SAO 1.5 .3 6.5 + 3 11 55 SAO 1.4 .4 .4 6.5 + 3 11 55 SAO 1.4 .4 6.5 + 3 11 55 SAO 1.4 .4 .4 6.5 + 3 11 55 SAO 1.4 .4 .4 6.5 + 3 11 55 SAO 1.4 .4 .4 6.5 + 3 11 55 SAO 1.4 .4 .4 6.5 + 3 11 55 SAO 1.4 .4 .4 6.5 + 3 11 55 SAO 1.4 .4 .4 6.5 + 3 11 55 SAO 1.4 .4 .4 6.5 + 3 11 55 SAO 1.4 .4 .4 6.5 + 3 11 55 SAO 1.4 .4 .4 6.5 + 3 11 55 SAO 1.4 .4 .4 6.5 + 3 11 55 SAO 1.4 .4 .4 6.5 + 3 11 55 SAO 1.4 .4 .4 6.5 + 3 11 55 SAO 1.4 .4 .4 6.5 + 3 11 55 SAO 1.4 .4 .4 6.5 + 3 11 55 SAO 1.4 .4 .4 6.5 + 3 11 55 SAO 1.4 .4 .4 6.5 + 3 11 55 SAO 1.4 .4 .4 6.5 + 3 11 55 SAO 1.4 .4 .4 6.5 + 3 11 50 SAO 1.4 .4 .4 6.5 + 3 11 50 SAO 1.4 .4 .4 6.5 + 3 11 50 SAO 1.4 .4 .4 6.5 + 3 11 50 SAO 1.4 .4	9.0 +55 51 35 AGL 1.6 .3 M6 5.4 - 6 35 21 SAO 1.8 .4 K2 4.0 +76 15 48 A3. 1.3 .3 M6.5 1.0 -17 10 12 1RC 1.6 .5 M6.5 9.0 -26 39 35 SAO 1.9 .4 M5 6.5 -10 48 57 SAO 1.6 .4 M5	5.0 +35 0 18 A5L 1.9 .4 -2.8 .5 G8 I 2.3 +36 51 23 SAU 1.6 .4 M0 I 3.9 +20 32 23 SAU .8 .3 M0 I 5.0 +26 6 C A5L 2.3 .3 2.0 +36 7 36 A5L 1.6 .3 5.7 -43 7 36 A5L 1.6 .3 5.8 -14 50 39 A6L 1.3 .3 -1.0 .41 .2 S 5.9 +40 46 14 SAU 1.7 .5 6.9 +40 46 14 SAU 1.7 .5	1.0 +37 4: 35 IFC 1.7 .4 2.0 -29 16 42 I/C 1.6 .4 5.0 +35 41 6 A5L 1.3 .3 5.7 +72 3: 27 KF; 4.0 +12 47 47 A5L 1.7 .3 7.0 +75 10 0 IFC 1.6 .4 9.0 +40 47 0 IFC 2.0 .5 1.7 .48 51 5PC 1.9 .4 1.7 +48 51 5PC 1.9 .4 3.8 +79 28 14 5PC

Supplemental Table Of Observations

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Names	GC 10017 RX MON GC 10022 6 CMI SVS 6587 KG MON	DO 31647 DO 13135 IC 2199 DO 13143 Z CMI	GC 10192 DO 13172 23 LYN	IC 2203 GC 10328 GC 10352 S GEM	DO 31839 DO 31838 GC 10465 SVS 100897 GC 10539 GC 10539
£	2865 2867 2864		2920 2915 2929	2959 2976	3014 3027 3030
TMSS	155 -10166 10165 -20132 -10168	70077 20183 30189	-20135 -10170 40180 60183	-30097 -20139 -20141	-30081E 40185 50185 -20176 -20142 -20143 10177
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Supplemental Table Of Observations 20) m(27) Spec Type AFGL TMSS HR 2 .4 4670S 9 .2 -2.7 .3 6416S 0 .2 -2.6 .3 6420S 1 .2 6 .3 6420S 1 .2 6 .3 6420S 2 .2 7 .3 6420S 1 .2 6 .3 6420S 2 .2 7 .3 6420S 1 .2 6 .3 6420S 1 .3 6420S 1 .3 6420S 1 .3 6420S 1 .4 673S 1 .4 673S 1 .4 668S 0 .4 4689S K5 G 4689S 1 .4 689S 1 .4 699S 1 .5 6.3 1257S		8 DE 1																									225			⊥ LYN	_	U L		3226	S 100	() ()	=			
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-	176.4 137.8 137.8 232.2 282.0 282.0 224.4 221.5 221.5	183.2 193.9 159.8 159.8 205.7 205.7 243.4 151.4	2239.2 2330.4 2239.2 2350.9 2360.9 176.6 7.151.7	231.0 2031.0 2037.7 180.4 196.4 185.3 165.3 236.5 226.5	198.7 195.0 157.0 226.9 158.1 280.6 209.8 2338.4
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£			3757 3775 3809	3834 3839 852	3896
TMSS	-20185	-10218	60196 30212 50198 40209 60196	189 70092 10210 50200 -10224	50201 10217 -20200
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(11) m(20) m(27)	o 4 0 00 4 0 4 44	.7 .4 -3.2 .4 -3.2 .4 -3.2 .4 -2 -1.5 .2 -1.6 .2 -1.8 .2	-3.3.3	-3.6 .4 -3.1 .4 -3.4 .2 -3.2 .2 -3.3 .3	-3.4.2 -2.5.2 -2.3.2 -1.6.2

Supplemental Table Of Observations

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-	23.04.1 1.04.0.1 1.04	217. 245. 239. 228. 252. 252. 250. 258.	283.2.2 283.2.2 283.2.2 283.6.2 283.6.2 281.6.2 291.6.2 201.6.2 201.6.2 201.6.2 201.6.2	2547.9 259.4 269.3 269.9 269.9 129.0 129.7 253.5 269.7 269.7	2238 22248 22248 2325 2325 2325 2325 2325 2325 2325 232
Obs	E0 + F + F + F + F + F + F + F + F + F +		8	16.21	
Comments	GALAXY		ï		03
Names	DO 2861 DO 33091 NGC 3057 DO 33133 GC 13823	DO 14081 DO 2890 DD LEO	DO 33214 DO 33214 W VEL NGC 3199	DO 2932 BET LMI GC 14442	48 LEO GC 14682 RX LMI BN CAR
Ä	3939			4 4 50 4 122	4146 4184 4184
TMSS	10223 60199 40214	20216 192 20217 -20206	60201 60202	40219 -20211 -10241	10232 70096 30224
AFGL	4760S 4761S 4761S 6458S 6458S 1393S 1393S 4764S	4768S 6460S 1398S 4769S 4770S 6461S 6462S 6463S 6463S	14015 14025 47745 47755 47775 14085 14085 14085	4780S 6465S 6465S 4783S 4783S 6467S 6468S 6468S 6469S	47875 47885 47885 47905 47905 47925 64715 64715 64715
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ì	2 4 2.4 4.5	2	n 4 40	2. 4	4. 9.6. 6. 7.7. 6. 4.7.
m(27)		4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	3. 1. 5. 4. 4. 4. 6. 8. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.	-2.4.3 M2 G9 G9 .9.2 K5	68 5 × 6 × 8 × 8 × 8 × 8 × 8 × 8 × 8 × 8 × 8
) m(11) m(20) m(27)	.3 -2.0 .4 .3 -5.2 -1.5 .2 .4 -6 .2 -1.5 .2 .3 -3.5 .4 .3	.4 -1.5 .4 .4 -2 -3.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	.33.5 -3.1.5 -6.8.6 .3 -2.2.4 -3.4.4 -3.4.4 -3.8.4 -1.3.2	.5 -1.4 .5 .9 .2 .4 .3 M38 .2 -1.9 .2 K5 K5 K5	.3 -1.7 .4 -4.0 .4 K3 K43
(11) m(20) m(27)	3 -2.0 .4 3 -5 .2 6 .2 -1.5 .2 4 -3.5 .4	.4 .4 .1.5 .4 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	3 -1.3.5 -3.1.5 -6.8.6 -2.2.4 -3.4.4 -3.4.4 -3.8.4 -1.3.2	44 .2 G9 43 M3	C8 -1.7 .4 -4.0 .4 K3 K4 -1.1 .2 -3.6 .3
4) m(11) m(20) m(27)	.6 .3 -2.0 .4 .6 .2 -1.5 .2 -2.4 .3 .5 .4 .3 .5 .4 .3	AO 1.4 .4 -1.4 .2 IR -1.9 .4 -3.4 .4 RC 1.0 .3 -2.2 -3.3 .3 IR -1.5 .4 -2.3 .2 AO 1.3 .3 -1.5 .4	.6 .33 .5 -3.1 .5 -6.8 .6 .6 .3 -2.2 .4 -3.4 .4 -3.4 .4 -3.8 .4 .7 .4 -3.8 .4 -1.3 .2	.9 .4 .2 .2 .3 M2 .5 .5 .1.4 .5 .8 .2 .1.9 .2 K5 K5 K5	.3 .4 .2 .3 .9 .4 .3 .4 -1.1 .2 -3.6 .3
D) Ref m(4) m(11) m(20) m(27)	55 SAO 1.5.4 7 SAO 1.8.3 -2.0.4 15 AGL 1.5.3 .5.2 21 FIR 30 SPC 6.2 -1.5.2 49 SAO 1.5.4 -3.5.4 18 AGL 1.5.3 52 SAO 1.5.4 54 AGL 1.5.4	43 SAO 1.4.4 -1.4.2 47 SAO 1.9.4 -3.4.4 18 AGL -3.4.4 -3.4.4 16 FIR -2.2 -3.3.3 21 FIR -2.3.3.3 36 AGL -1.5.4 -2.3.2	54 SAD 1.5.43.5 -3.1 .5 -6.8 .6 12 AGL 1.6.3 -1.3.5 -3.1 .5 -6.8 .6 24 AGL 1.6.3 -2.2 .4 36 AGL 1.7 .4 -3.4 .4 0 AGL 0 AGL 1.7 .4 -3.8 .4 4 FIR 1.7 .4 -3.8 .4 -1.3 .2	22 SAO 1.9 .4 -2.4 .2 69 SPC 1.9 .4 -8 .2 -1.4 .5 69 SPC 1.9 .4 -8 .2 -1.9 .2 69 SPC 1.9 .4 -9 .2 8 SPC 33 SPC 33 SPC 1.9 .4 -9 .2 8 SPC 33 SPC -1.7 .2	42 SAO 2.3.4 30 AGL 1.8.3 54 AGL 54 AGL 1.2.3 19 SAO 1.9.4 43 SAC 1.3.4 -1.1.2 48 AGL -1.4.4 68 AGL -1.4.4
c(1950) Ref m(4) m(11) m(20) m(27)	5 2 55 SAO 1.5 .4 -2.0 .4 1.8 1.8 .3 -2.0 .4 4 46.21 FIR 5 .3 .5 .2 -1.5 .2 4 .3 1.8 .4 5 .4 8 SAO 1.5 .4 -3.5 .4 -3.5 .4 8 SAO 1.5 .5 .5 .5 .4 8 SAO 1.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .	8 20 43 SAO 1.4 .4 -1.4 .2 1 9 47 SAO 1.9 .4 -3.4 .4 0 58 18 AGL -3.4 .4 7 36 6 IRC 1.0 .3 -2 2 -3.3 .3 5 34 55 FIR -9 23 21 FIR -9 2.3 4 36 36 AGL -1.5 .4 -2.3 .2	9 38 54 5A3 1.5.4 -3.5 -3.1 .5 -6.8 .6 34 12 AGL 1.6.3 -1.3.5 -3.1 .5 -6.8 .6 3 4 24 AGL 1.6.3 -2.2.4 74 0.36 AGL -1.7.4 -3.4.4 3 45 0 AGL 1.7.4 -3.4.4 -3.8.4 0 AGL 1.7.4 -3.8.4 0 34 4 FIR 1.7.4 -1.3.2	3 23 22 SAO 1.9 .4 -2.4 .2 -2.4 .3 -2.	7 12 42 SAO 2.3 .4 8 36 54 AGL 1.8 .3 3 20 54 AGL 3.4 9 0 16 AGL 1.2 .3 9 0 16 AGL 1.2 .3 1 57 33 SAO 1.3 .4 1 57 33 SAO 1.3 .4 1 57 44 SPC -1.1 .2 2 54 40 FIR -1.4 .4
Dec(1950) Ref m(4) m(11) m(20) m(27)	0 + 5 2 55 5AD 1.5 .4 2.0 .4 1.57 3 7 5AD 1.8 .3 -2.0 .4 3 -4.62 1 FIR 5 .3 .5 .2 -1.5 .2 3 -4.62 1 FIR 5 .3 .5 .2 -1.5 .2 6 .2 6 .2 6 .2 6 .2 6 .2 6 .2 6 .2	4 +18 20 43 SAO 1.4 .4 -1.4 .2 5 - 4 18 18 FIR 1 + 1 9 47 SAO 1.9 .4 -3.4 .4 0 +10 58 18 AGL -3.4 .4 0 +17 36 6 IRC 1.0 .3 -2 2 -3.3 .3 3 - 5 34 55 FIR -9 23 21 FIR -1.5 .4 -2.3 .2 6 - 9 23 21 FIR -1.5 .4 -2.3 .2 8 - 18 42 33 SAO 1.3 .3 -1.5 .4	6 +59 38 54 SAD 1.5.4 -3.5 -3.1.5 -6.8.6 0 +56 36 0 IRC 1.0.3 -1.3.5 -3.1.5 -6.8.6 0 +79 34 24 AGL 1.6.3 -2.2.4 0 -54 12 24 AGL -1.7.4 -2.2.4 0 +18 45 0 AGL -1.7.4 -3.8.4 0 +51 30 0 AGL 1.7.4 -3.8.4 1-13.2	7 - 3 23 22 SAO 1.9 .4 -2 -16 25 28 FIR -4.2 -2.4 .3 6 +81 12 38 SPC -1.4 .2 6 +81 12 38 SPC -2.4 .3 6 +81 12 38 SPC -2.4 .3 69 +36 57 51 SAO 1.5 .5 -1.4 .5 69 SPC -2.8 .2 8 .2 -1.9 .2 7 +65 35 59 SPC -1.9 .2 -1.9 .2 7 22 49 SAO 1.9 .4 -9 .2 481 44 38 SPC -1.7 .2 482 0 33 SPC -1.7 .2	5 + 7 12 42 SAO 2.3 .4 0 +14 37 30 AGL 1.8 .3 0 -48 36 54 AGL 1.8 .3 0 -63 20 54 AGL 1.2 .3 6 +68 42 19 SAO 1.2 .3 6 +68 42 19 SAO 1.3 .4 5 +31 57 33 SAO 1.3 .4 6 +82 47 44 SPC 1.3 .4 7.6 +6 40 FIR -1.1 .2 7.6 .3
950) Dec(1950) Ref m(4) m(11) m(20) m(27)	12.0 + 5 2 55 SAO 1.5 .4 26.1 +57 3 7 SAO 1.8 .3 -2.0 .4 27.2 +70 13 15 AGL 1.5 .3 .5 .2 3.7 +80 24 30 SPC .6 .2 -1.5 .2 24.8 +41 32 49 SAO 1.5 .4 -3.5 .4 31.0 +20 57 18 AGL 1.5 .3 5.0 +45 8 18 AGL 1.5 .3 6.0 +84 4 6 AG 1.5 .4	14.4 +18 20 43 SAO 1.4 .4 -1.4 .2 3.5 - 4 18 18 FIR 59.1 + 1 9 47 SAO 1.9 .4 -3.4 .4 50.0 +10 58 18 AGL 29.0 +10 58 18 FIR 50.3 -12 22 16 FIR 50.3 -5 34 55 FIR 755 - 9 23 21 FIR 755 -8 36 AGL -1.5 .4 55.8 -18 42 33 SAO 1.3 .3	59.6 +59 38 54 SAD 1.5.4 17.0 +56 36 0 IRC 1.0.33.5 46.0 -57 34 12 AGL 49.0 +79 34 24 AGL 21.0 -54 12 24 AGL 10.0 +18 50 18 AGL 21.0 -53 45 0 AGL 21.0 -53 45 0 AGL 33.0 +21 30 0 AGL 1.7.4 -3.8.4 7.3 -30 34 4 FIR	43.2 -16 25 28 FIR 13.6 +81 12 38 SPC 59.9 +36 57 51 SAO 1.9 .44 .2 32.0 -21 28 30 IRC 1.6 .48 .2 34.2 +81 28 SPC8 .2 -1.9 .2 24.2 49 SAO 1.9 .49 .2 43.2 +81 44 38 SPC9 .2 11.4 +82 0 33 SPC -1.7 .2	11.5 + 7 12 42 SAO 2.3 .4 32.0 +14 37 30 AGL 1.8 .3 47.0 -48 36 54 AGL 1.8 .3 22.0 -63 20 54 AGL 2.3 .4 26.0 +79 0 16 AGL 1.2 .3 16.6 +68 42 19 SAO 1.9 .4 56.8 +82 47 44 SPC 1.3 .4 42 54 40 FIR -1.4 .4 68 42 19 54 GL 1.3 .4 69 52 48 AGL 1.3 .4 68 42 19 54 GL 1.3 .4 69 52 48 AGL 1.3 .4 69 52 48 AGL 1.4 .4
Dec(1950) Ref m(4) m(11) m(20) m(27)	2.0 + 5 2 55 SAO 1.5 .4 5.1 457 3 7 SAO 1.5 .4 5.2 -2.0 .4 7.2 +70 13 15 AGL 1.5 .3 .5 .2 -1.5 .2 8.3 -4.6 21 FIR 6.2 -1.5 .2 -2.4 .3 3.7 +80 24 9 SAO 1.5 .4 -3.5 .4 5.0 +45 8 18 AGL 1.5 .3 -3.5 .4 5.0 +45 8 18 AGL 1.5 .3 -3.5 .4 5.0 +45 8 18 AGL 1.5 .3 6.0 +45 8 18 AGL 1.5 .4 6.0 +45 AGL 1.5 AGL 1.5 AGL 1.5 AGL 1.5 AGL 1.5 AGL 1.5 AGL 1	3 14.4 +18 20 43 SAO 1.4 .4 4 3.5 - 4 18 18 FIR 4 59.1 + 1 9 47 SAO 1.9 .4 5 9.0 +10 58 18 AGL 5 40.3 - 12 22 16 FIR 5 50.3 - 5 34 55 FIR 6 37.5 - 9 23 21 FIR 7 27.0 +24 36 36 AGL -1.5 .4 8 55.8 -18 42 33 SAO 1.3 .3	9.6 +59 38 54 SAD 1.5.4 7.0 +56 36 0 IRC 1.0 .33 .5 -3.1 .5 -6.8 .6 6.0 -57 34 12 AGL -1.3 .5 -3.1 .5 -6.8 .6 9.0 +79 34 24 AGL 1.6 .3 -2.2 .4 1.0 -54 12 24 AGL -2.2 .4 1.0 -51 30 0 AGL -2.4 .4 -3.8 .4 7.3 -30 34 4 FIR -1.7 .4 -3.8 .4	3.2 -16 25 28 FIR4 .24 .24 .3 .3 .5 +81 12 38 SPC4 .3 .2 .0 -21 28 30 IRC 1.6 .48 .2 -1.4 .5 .5 .1 .4 .5 .5 .1 .4 .5 .5 .1 .4 .5 .5 .1 .4 .5 .5 .1 .4 .5 .5 .1 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	1.5 + 7 12 42 SAO 2.3 .4 2.0 +14 37 30 AGL 1.8 .3 7.0 -48 36 54 AGL 1.8 .3 2.0 -63 20 54 AGL 1.2 .3 6.0 +79 0 16 AGL 1.2 .3 6.6 +68 42 19 SAO 1.3 .4 6.6 +68 42 19 SAO 1.3 .4 6.8 +82 47 44 SPC 1.3 .4 6.8 +82 47 44 SPC 1.3 .4 7.6 -59 52 48 AGL -1.1 .2

Supplemental Table Of Observations

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-	141.0 252.7 252.6 137.7 251.6 137.0 135.6 185.2 267.7	165.8 130.9 263.7 125.9 224.9 138.3 137.7 2223.8	25 4 4 5 4 5 6 5 6 6 6 6 6 6 6 6 6 6 6 6	2555 2565 2565 2555 2555 2568 273 286 286 286 386 386 386 386 386 386 386 386 386 3	292.0 286.7 255.6 288.4 128.8 128.8 131.5 282.2 282.2 244.6
SqO	1 4 1 4 1 4 1 4 1 1 1 1		41441444	1 - 1 1 1	1111111411
Comments					
Nomes	DO 33430 DO 3001 DO 14320 GC 15101	GC 15109 RCW 56 DO 14361		73 LEO IC 2680 V437 CEN	GC 15690 IC 2823
æH.	4224 4278 4284	4280		4365	
TMSS	70101 195 40221	50206		10251	-10255
AFGL	47948 64738 64748 64748 64758 64778 64778 47968	47975 64795 64815 47995 64825 64835 64845 48005	6485S 4801S 6486S 6487S 1468S 6488S 6489S 6490S 6491S	64938 64948 64958 64958 14708 48048 64968 48058	48085 48095 14785 48125 48135 48145 48155 64975 14905
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() H(20) H(27)	6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6	.9 .2 9 .2 -2.9 .3 -3.3 .6 -2.0 .3 -1.2 .2 -3.2 .3	4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4	1.0 .4 -1.7 .2 -3.6 .3 -2.0 .2 -3.6 .3 -6 .5 -7 .4 .2 -7 .4 .2 .2 .4	4. 5. 6. 2 . 7. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4.

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-	261.8 260.3 260.3 268.9 268.9 261.9 126.9 281.2	243.8 243.8 243.8 2243.8 2266.0 286.0 286.0	295.8 2295.8 2241.1 2244.3 2246.3 2285.6 288.8 288.8	1330 2289.14 2289.14 2288.6 2248.0 271.0 1271.0	297.6 167.9 137.7 291.8 291.6 291.6 291.6 291.8
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Comments	w w	ш	ш	OPEN CL	
8	GC 15832 GC 15852	GC 16052 GC 16055	DO 3152 DO 33833 GC 16393	NGC 4052	AY CRU
Ŧ	244	4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			
TMSS	-30176 208	-30180 60211 -30181	211 50214 -30186	20237	
AFGL	14915 64985 64995 65005 48195 48205 65015 65015	65035 48225 15045 15065 48245 65045 65045 65055	48275 65065 48285 15135 65075 48295 65085 65095 15205	65105 65115 48335 48335 65128 65135 65145 65145 65155	48365 15375 15385 65175 15405 65185 65195 65205 65215
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m(27)	-1.8 .2 -2.8 .4 -2.0 .2 8 .2 -2.1 .2	2. 8. 5. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.	444 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6	0 0000- 440 1 4001 110 1 1 0 0 0 0	ν ααον.
m(11) m(20) m(27)	.3 -2.0.2 -2.0.2 -3 -2.1.2	.3 .4 .4 -1.6 .4 -2.0 .4 -1.8 .2 -3.5 .3	.3 -1.4 .4 -3.9 .4 -3.0 -3.0 -3.0 -3.0 -3.0 -3.0 -3.0	-1.9 .2 -3.9 .4 -3.0 .3 -4.5 .6 -6.2 .6 -1.1 .2 -2.4 .2 -1.0 .2	6. 1. 6. 4. 7. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
(11) m(20) m(27)	3 -2.8.2 -2.0.2 -8.2 -2.1.2	-1.6 .4 -2.0 .4 -7.7 .4 -1.8 .2	-1.4 .4 -3.9 .4 -3.8 .2 -3.9 .4 -3.9 .4 -3.9 .4 -3.9 .4 -3.9 .4 -3.9 .4 -3.9 .4 -3.9 .4 -3.9 .4 -3.9 .4 -3.9 .4 -3.9 .4 -3.9 .9 -4 -3.9 .4 -3.9 .9 -4 -3.0 .9 -4 -4 -3.0 .9 -4 -4 -3.0 .9 -4 -4 -4 -4	-1.9 .2 -3.9 .4 -3.0 .3 -4.5 .6 -6.2 .6 -1.1 .2 -2.4 .2 -1.0 .2	6. 1. 6. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
Ref m(4) m(11) m(20) m(27)	AGL 1.5 .3 -1.8 .2 FIR -2.8 .4 FIR -2.0 .2 FIR -3.3 SAO 1.6 .4 AGL 1.6 .3 FIR	AGL 1.5 .3 IRC 1.1 .4 SAO 1.3 .4 -1.6 .4 AGL -2.0 .4 FIR FIR -7 .7 .4	AGL -1.4 .4 -3.9 .4 FIR -2.8 .2 -3.9 .4 SAO 1.5 .3 -3.9 .4 FIR -3.3 .3 FIR AGL SAO 1.8 .4 -1.5 .2 -2.5 .3 AGL SAO 1.8 .4 -3.3 .4 -2.5 .3 SAO 1.8 .4 -3.3 .4 -2.5 .3	FIR FIR AGL AGL AGL AGL AGL AGL 1.9 .2 -3.0 .3 AGL -4.5 .6 -6.2 .6 FIR FIR -1.1 .2 -1.1 .2 FIR FIR FIR FIR FIR FIR FIR FIR	AGL 1.4 .3 -1.6 .4 AGL 1.4 .3 AGL 1.4 .3 FIR
Ref m(4) m(11) m(20) m(27)	6 AGL 1.5 .3 -1.8 .2 5.4 AGL 1.5 .3 -2.8 .4 -2.0 .2 36 FIR -2.0 .2 36 FIR -3.3 32 SAO 1.6 .4 36 AGL 1.6 .3 -2.1 .2 -2.7 .3	5 22 FIR 5 6 AGL 3 30 AGL 1.5 .3 8 54 IRC 1.1 .4 6 58 SAO 1.3 .4 2 2.5 .3 1 8 SAO 1.3 .4 2 2 AGL 2 2 AGL 3 7 8 .3 5 4 2 SAO 1 3 FIR 5 4 2 SAO 1 3 FIR 5 4 2 SAO 1 3 FIR 5 4 2 SAO	0 42 AGL -1.4 .4 -3.9 .4 -3.9 .4 6 12 AGL -2.8 .2 -3.9 .4 -3.9	3 28 FIR 6 6 AGL 3 0 ACL 0 29 FIR 3 9 CIO 1 2 5 FIR 4 27 FIR 1 9 FIR 1 9 FIR 1 9 FIR 1 9 FIR 1 9 FIR 1 9 FIR 1 1 0 2	4 48 AGL 1.4 .3
ec(1950) Ref m(4) m(11) m(20) m(27)	1 42 6 AGL 1.5 .3 -1.8 .2 52 23 54 AGL 5 .3 -2.8 .4 -2.8 .4 -2.0 .2 5 7 36 FIR -2.0 .2 -2.8 .2 5 5 4 AGL 6.3 5 4 .3 .3 -2.1 .2 5 5 4 FIR -2.1 .3 .3 -2.1 .2 5 5 4 FIR -2.1 .3 -2.1 .3 -2.1 .2 5 5 4 FIR -2.1 .3	25 22 FIR 35 6 AGL 1.5 .3 6 58 54 1RC 1.1 .4 6 56 58 5AO 1.3 .4 -1.6 .4 7 .4 35 42 SAO 1.3 .4 -1.6 .4 7 .4 35 42 SAO 1.3 .4 -7 .7 .4 -1.8 .2 -	3 30 42 AGL -1.4 .4 -3.9 .4 -2.8 .2 -3.9 .4 -3.9 .4 -3.9 .4 -3.9 .4 -3.9 .4 -3.9 .4 -3.9 .4 -3.9 .4 -3.9 .4 -3.9 .4 -3.9 .4 -3.9 .4 -3.9 .4 -3.3 .3 -3 -3 -3 -3 -3 -3 -3 -3 -3 -3 -3 -3 -3	24 328 FIR 27 26 6 AGL 23 20 29 FIR 23 10 9 FIR 9 55 5 FIR 9 44 27 FIR 24 27 FIR 25 5 9 FIR 9 55 9 FIR 9 65 5 61 7 60 7 60 7 60 7 60 7 60 7 60 7 60 7	58 44 48 AGL 1.4 .3
Dec(1950) Ref m(4) m(11) m(20) m(27)	8.0 + 1 42 6 AGL 1.5 .3 -1.8 .2 8.2 + 3 24 35 FIR -2.8 .4 7.0 -62 23 54 AGL -2.8 .4 0.2 + 3 31 17 FIR -2.0 .2 3.7 - 5 7 36 FIR -2.0 .2 4.0 -26 28 15 SAO 1.6 .4 2.0 +80 6 36 AGL 1.6 .3 6.8 -22 27 50 FIR -2.7 .3	8.1 -10 15 22 FIR 5.0 -58 35 6 AGL 7.0 +16 13 30 AGL 6.0 -29 58 54 IRC 1.6 +55 26 58 SAO 1.4 .4 3.9 -32 13 18 SAO 7.0 -48 12 42 AGL 7.0 -4 3 35 FIR 4.0 -27 1 3 FIR 8.3 -24 35 42 SAO -3.5 .3	3.0 -63 30 42 AGL 9.9 -27 25 15 FIR 7.0 -43 46 12 AGL 3.2 - 3 2 4 SAO 6.8 -25 57 20 FIR 3.1 +51 41 26 SAO 5.3 -13 2 11 FIR 6.0 -29 #7 18 AGL 8.9 -29 46 56 SAO 1.8 .4 -1.4 .4 -3.9 .4 -3.9 .4 -3.3 .3 -3.3 .3	2.5 +67 54 25 FIR 4.3 -24 3 28 FIR 9.0 -27 26 6 AGL 2.0 -62 53 0 AGL 9.4 -23 20 29 FIR 1.7 +19 3 9 CIO 1.2 .3 -2.4 .2 7.9 + 9 44 27 FIR 5.9 +73 21 9 FIR 7.0 + 9 44 27 FIR 5.9 +73 21 9 FIR	4.0 -58 44 48 AGL -1.6 .4 8.0 +35 24 30 AGL 1.4 .3 7.0 +51 28 54 AGL 1.4 .3 9.5 -24 16 1 FIR 0.0 +21 5 24 AGL 1.6 .3 1.6 -22 49 58 FIR 8.7 -24 19 24 FIR 0.3 -23 15 56 FIR 6.3 -1.8 .
ec(1950) Ref m(4) m(11) m(20) m(27)	0 + 1 42 6 AGL 1.5 .3 -1.8 .2 -2.8 .4 -2.0 .2 +3 31 17 FIR -2.0 .2 -2.	-2.5.3 0 -58 35 6 AGL 0 +16 13 30 AGL 1.5.3 0 -29 58 54 1RC 1.1.4 6 +55 26 58 SAO 1.4.4 1.9 -32 13 18 SAO 1.3.4 -1.6.4 0 -2 58 54 1RC 1.3.4 -1.6.4 0 -3 13 39 35 FIR 0 -2 7 1 3 FIR 3 -2 4 35 42 SAO -7.5.3	.0 -63 30 42 AGL -1.4 .4 -3.9 .4 -2.8 .2 .0 -43 46 12 AGL -2.8 .2 -3.9 .4 -3.9	5 +67 54 25 FIR 3 -24 3 28 FIR 0 -27 26 6 AGL 0 -62 53 0 AGL 4 -23 20 29 FIR 7 + 19 3 3 9 CID 1.2 .3 -2.4 .2 9 + 9 44 27 FIR 9 + 73 21 9 FIR 1.2 .3 -2.4 .2	0 -58 44 48 AGL -1.6 .4 0 +35 24 30 AGL 1.4 .3 0 +51 28 54 AGL 1.4 .3 5 -24 16 1 FIR 0 +21 5 24 45 B FIR 0 +22 49 58 FIR 0 -1.8 .5 -24 19 24 FIR 0 -1.8 .5 -22 52 51 FIR 0 -1.8 .5 -22 52 51 FIR 0 -1.8 .5 -22 52 51 FIR 0 -1.8 .5 -1.7 .5 -1.5 .5 -1.

Supplemental Table Of Observations

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Ä				4792 4795	4850 4863
TMSS		10251 -10265 10252 10253	218 219 30239	20244 70114 222 -30193	-10271 -20244 10258 -30177E 40238
AFGL	65238 65248 65248 65258 65268 65278 15418 65288 65298	65328 48338 48388 65338 15468 48408 48418 65348 65348	65368 48448 48448 15538 65378 48468 48488 15568	4850S 1557S 1561S 6538S 6538S 4854S 4855S 4855S 6539S	48598 48608 48618 48618 48648 48648 48648 48658 48658
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27)	1.0211 1.1 1. 80 4 0 0 4 0 0 4 0 0 1. 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6		6 6 6 6 6 6 7 9 6	
m(27)	0 040π 4ωφ⊷	.2 .2 .3 .3 .3 .8 .3 .8 .3	3.2 .6 -3.3 .3 -2.9 .3 3.1 .5		. 5 . 5
11) m(20) m(27)		.2 .2 .3 .3 .3 .8 .3 .8 .3	1.7 .4 -3.2 .6 -2.9 .3 .2 .4 -3.1 .5	2. 2. 2 2. 3. 4 1. 4. 4 - 3. 3. 5 - 6. 3. 6 - 6. 2 - 2. 3. 3	1.2 .5 -2.7 .5 -1.2 .2 6 .4
4) m(11) m(20) m(27)	6 . 3	.8 .4 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	5.4 .2.4 -3.1.5 7.4 -3.1.5 7.4 -1.8.4 -3.1.5	5 . 3 6 . 3 6 . 3 7 . 2 . 2 3 . 4 1 . 4 . 4 . 3 . 3 . 5 . 6 . 3 7 . 4 . 4 . 3 . 3 . 5 . 6 . 3 . 6 7 . 6 . 2 . 3 . 3 . 5 . 6 . 3 . 3 . 5 . 6 . 3 . 3 . 5 . 6 . 3 . 3 . 5 . 6 . 3 . 3 . 5 . 6 . 3 . 3 . 5 . 6 . 3 . 3 . 3 . 5 . 6 . 3 . 3 . 3 . 5 . 6 . 3 . 6 . 3 . 6 . 3 . 5 . 6 . 3 . 6 . 3 . 5 . 6 . 3 . 6 . 3 . 5 . 6 . 3 . 6 . 3 . 5 . 6 . 3 . 6 . 3 . 5 . 6 . 3 . 6 . 3 . 5 . 6 . 3 . 5 . 6 . 3 . 5 . 6 . 3 . 5 . 6 . 3 . 5 . 6 . 3 . 5 . 6 . 3 .	.5 .3 .1.2 .5 -2.7 .5 .3 .3 .4 .8 .4 .1.2 .2 .2 .1.2 .2 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5

Supplemental Table Of Observations

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-	304.0 304.0 304.0 304.0 304.0 306.6 306.6 306.6 4.72.4	3025.0 3055.0 3055.0 3055.0 1222.1 1221.7 121.7 121.7 121.7	121.5 304.3 304.3 315.5 41.9 118.4 107.8	3308.0 3008.0 3008.0 3008.0 312.1 17.6 17.6	321.6 108.3 317.9 115.2 312.0 116.6 115.8 312.0
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Comments				_	
Names	32 COM SVS 1948 DO 34220 DO 3298	9 0 DR	TY CEN DO 3311 41 COM	UW UMA	GC 17884 DO 3327 57 VIR
£	4 4 4	4928	4954		5001
TMSS	20249 -30198 50221 10259	71107	10263 30245 -30202	60223	10266
AFGL	4868S 6541S 4869S 4870S 6542S 6543S 6544S 6544S 6545S	65475 65485 65498 65508 65518 65525 48725 48735 65535	65548 65558 48758 48768 65568 48788 65578 16008 48798	48805 65595 16015 48815 16035 48825 65605 65615 65615	48845 16055 16075 65635 48855 65645 65655 65655 65665
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(11) m(20) m(27) Spec	M. 3.5. 1.3.5. 3.5. 1.4.2. 1.9.2. 4.8	.7 .2 -1.7 .2 -2.1 .2 -3.0 .3 .8 .2 .3 .5 .5 .5 .6 .5	4. 0: 2. 4. 2. 4. 4. 2. 4. 4. 2. XS	6.6 6.6 6.6 6.6 6.6 6.6 6.6 6.6	M0 1.5.45.2 -2.9.3 M6 1.5.43.2 -2.5.3 -1.5.2 -2.1.3 K1
) m(11) m(20) m(27) Spec	SAC 2.0 .4 -1.2 .2 MS SAC 1.2 .3 -1.3 .5 MS SAC 1.3 .4 -1.4 .5 -1.7 .2 MA FIR -1.9 .2 -1.1 .2 FIR SAC 1.7 .49 .2 -1.1 .2 FIR SAC SAC 1.7 .49 .2 -1.1 .2 SAC	FIR SPC FIR FIR FIR SPC SPC AGL SPC AGL SPC SPC SPC SPC SPC SPC SPC SPC	6 .4 -1.5 .4 M6 4 .4 -1.1 .2 K5 -1.1 .2 K5 -1.1 .2 K5 -1.1 .2 K7	-3.4 .5 -6.6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6	AGL 1.5 .4 AGL 1.6 .3 AGL 1.6 .3 AGL 1.2 .4 AGL 2.4 AGL 2.4 AGL 2.4 AGL 2.5 .2 -2.9 .3 AGL 3.2 SPC 3.2 SPC 3.3
Ref m(4) m(11) m(20) m(27) Spec	AC 2.0.4 -1.2.2 MIS AC 1.2.3 -1.3.5 MS AC 1.3.4 -1.4.5 -1.7.2 MA AC 1.7.49.2 -1.1.2 MA BC 1.7.49.2 -1.1.2 MA BC 1.7.49.2 -1.1.2 MA	7.2 -1.7.2 -3.0.3 -8.2 -3.6.5 -5 -3.6.5 -5 -3.6.5	PC	GL -3.4 .5 -6.6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6	AO 1.5.4 GL 1.5.3 GL 1.6.33.2 PC 1.2.45.2 -2.9.3 RG 1.4.45.2 -2.5.3 PC 1.4.45.2 -2.5.3 PC 1.4.45.2 -2.5.3
Dec(1950) Ref m(4) m(11) m(20) m(27) Spec	+17 20 44 SAC 2.0 .4 -1.2 .2 M5	- 9 6 24 FIR - 7 .2 -1.7 .2 -1.7 .2 - 8 48 41 FIR - 8 28 15 FIR - 8 28 15 FIR - 8 28 .2 - 8 .	+67 23 27 SPC4 .2 +56 30 44 SPC -1.0 .2 -63 23 6 AGL -1.5 .4 + 5 10 35 SAO 1.6 .4 +14 1 44 FIR -1.5 .4 +27 3 48 SPC -1.1 .2 +39 26 48 AGL 1.4 .3 -1.1 .2 +57 33 7 SPC -1.4 .2 K5 +74 48 AGL 1.4 .3 -1.4 .2	-55 34 54 AGL -3.4 .5 -6.6 .6 -30 38 6 AGL -1.9 .4 -3.2 .4 -5 -6.6 .6 -20 38 18 AGL -2.9 35 18 AGL -2.9 35 18 AGL -2.9 35 FIR -4 39 8 FIR -4 28 5 FIR -4 28 5 FIR -5.5 -5.6 .5 -1.0 .2	+11 49 18 SAO 1.5 .4
Ref m(4) m(11) m(20) m(27) Spec	7 20 44 SAC 2.0 .4 -1.2 .2 MS 5 5 5 C 1.2 .3 -1.2 .2 MS 5 5 S C 1.2 .3 -1.3 .5 MS 5 S C 1.3 .4 -1.4 .5 -1.7 .2 MS 6 5 2 2 7 F IR -1.4 .5 -1.7 .2 MS 6 5 3 2 4 S C -1.7 .4 -1.9 .2 -1.1 .2 MS 7 0 15 S C C 1.3 .4 -1.2 .2 -1.1 .2 .2	9 6 24 FIR 8 48 41 FIR 8 28 15 FIR 76 30 55 SPC 67 1 40 SPC 76 41 54 AGL 51 51 36 AGL 67 32 8 SPC 67 32 8 SPC 68 52 0 SAO 1.5 .4 .3 .2 .4 .8 .5	56 30 44 SPC4 .2 56 30 44 SPC -1.0 .2 53 23 6 AGL -1.5 .4 5 10 35 SAO 1.6 .4 -1.5 .4 M6 14 1 44 FIR -1.4 .2 K5 57 3 48 SPC -1.1 .2 39 26 48 AGL 1.4 .3 -1.1 .2 57 33 7 SPC -1.4 .2 M7	55 34 54 AGL 4 57 26 FIR 30 38 6 AGL 29 35 18 AGL 5 59 24 AGL 5 59 35 FIR 4 39 8 FIR 4 28 5 FIR 5 58 38 54 IRC 1.5 .5 -1.0 .2	11 49 18 SAO 1.5 .4 M0 42 29 42 ACL 1.5 .3

Supplemental Table Of Observations

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-	114.6 1118.9 1119.9 1119.9 1119.9 1119.9 1119.6 1119.6 1119.6	33.7.6 3.4.7.6 3.4.7.6 3.1.9.3 3.12.8 3.12.8 9.9	319.4 308.3 308.3 308.1 313.6 108.4 21.7 314.0 105.6	308.4 325.4 310.6 95.0 314.8 319.2 17.5 323.8	101.5 120.6 98.8 100.9 117.0 117.0 67.1
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Comments		-	_	_	
Neses	SVS 101376 SVS 101379	65 VIR ZET UMA DO 34384 IC 4255 IC 4274	76 VIR DV CEN IC 4299 DQ 14781 GC 18437	FI CEN T CEN DO 14793	DO 34472 IC 0945 DO 14818
품		5047 5054 5073	5123	5147	5215
TMSS	-10283 -20251 -20252	234 60224 70118	-10289 20260 50230 -10291	-30189E -20257 20261	50232
AFGL	65675 16135 65685 48885 65695 488905 48905 48915 48915	16195 48945 65705 16215 48955 48965 48975 48985 48995 16305	49008 49018 65718 49038 65728 49048 49068 16398	49075 65735 49085 65748 49105 49115 16445 65755	65765 65778 65785 49145 65795 65795 65805 65815 49185 49185
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(11) m(20) m(27)			5.4 5.2 1.3.4 -3.0.5 -1.6.2 -1.7.3	7 .4 -3.5 .4 -2.8 .4 -1.1 .2 -6.1 .6 -2.3 .3 -2.3 .3	.8 .2 -1.6 .2 -2.6 .3 .8 .2 -1.7 .2 -2.6 .3 .5 .7 .4 .7 .5 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2

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Supplemental Table Of Observations

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-	117.6 105.1 81.8 323.0 330.1 332.0 86.3 85.7	73.28 33.20 33.20 31.9.4 73.2 6.19	333.3 26.9 26.9 327.1 117.3 94.6	3220.3 3229.5 3229.5 3327.5 337.2 71.1 96.8	332.4 102.4 332.2 313.3 81.7 329.2 4.3 342.8
80	444111111111111111111111111111111111111	E 2 2 1 1 1 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1	1111111114	4	1811461611
Comments	w	w w			
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Æ			5300		
TMSS	40249	40252 -30200E 20269	-10298 -20264 50237		-10303
AFGL	65825 65835 49215 16575 49225 16665 65845 65855 16715	49245 65865 65875 49265 65885 49275 65905 65905	16785 16795 49295 16815 49305 49315 65925 49325 65935	65955 49335 16835 49345 49355 65965 65975 65985 66995	49368 66015 49375 49385 66025 66035 16995 66045 49395
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m(27)		6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	3.1 .4 3.3 .5 8 .2 1.3 .2 -4.7 .3	2.7.2 3.2.4 3.2.4 2.7.5 1.4.2 2.2.2 2.2.2 2.2.3	2: 2: 2: 2: 2: 2: 2: 2: 2: 2: 2: 2: 2: 2
(11) m(20) m(27)	. 6 . 2 . 1. 2 . 2 . 5 . 3 . 4 . 6 . 2 . 2 . 5 . 3 . 7 . 4 . 7 . 4 . 1 . 2 . 1 . 2 . 5 . 3	2.6.2 -1.5.2 -1.7.2 -1.7.2 -2.9.4 -6.2.6 -3 -1.0.2 -2.6.3	3.1 .4 3.3 .5 8 .2 1.3 .2 -4.7 .3	6 .24 .2 -3.3 .5 -3.2 .4 1.7 .4 -2.7 .5 1.6 .2 -2.2 . -1.4 .2 -2.2 .	4 . 2 4 . 2 1 . 7 . 2 3 . 2 5 . 5 3 . 2 4 . 2 7 . 1 . 2 1 . 3 . 2 1 . 1 . 5 . 5 . 5
4) m(11) m(20) m(27)	.3.5 .5.3 .4.3 -1.8.4 .4.3 -1.0.2 .4.3 -1.1.2	-1 .3	.6 .3 .5 .3 .7 .4 .8 .4 .4 .4 .1.3 .2 .4.7 .3	6 .24 .2 -3.3 .5 -3.2 .4 1.7 .4 -2.7 .5 1.6 .2 -2.2 . -1.4 .2 -2.2 .	.0 .3 -1.6 .5 -2.9 .5 -1.6 .5 -2.5 .5 -2.4 .2 -7 .2 -7 .2 -7 .2 -7 .2 -7 .3 -1.1 .5 -2.9 .5 .3 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5

Supplemental Table Of Observations

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-	343.8 36.9 39.1 120.2 311.0 54.6 61.5 328.9	25.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	337.3 3359.7 3354.7 3347.7 1339.1 336.1 336.1 346.1 346.1	321.2 38.5 326.6 326.6 39.0 359.0 147.5 75.5	33 34 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
sqo	: : : : : : : : : : : : : : : : : : : :	E	121111111111111111111111111111111111111	145112111 1451118111191	11181111
Comments		w w		W	
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Supplemental Table Of Observations

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Supplemental Table Of Observations

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11) m(20)	-2.4.2 -1.9.2 9.2 -2.0.2 -1.1.2	-1.0 .2 -1.1 .2 -6.7 . -1.1 .2 -2.6 . -8 .2 -2.6 .	13.8 1.7.1 1.6.2 1.3.5 1.3.5	2. 1.2 4 -2.7.2 4 -3.4.2	4
f m(4) m(11) m(20)	1.6 .4 .2 .2 .4 .2 .1 .9 .2 .1 .9 .2 .1 .9 .2 .1 .9 .2 .1 .9 .2 .1 .9 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1	1.5 .4 1.5 .4 1.6 .4 1.4 .3 1.1 .2 1.8 .2 -6.7 .	GL 1.5 .3 GL 1.7 .4 GL 1.7 .3 GL 1.7 .3 GL 1.7 .3 AD 1.0 .4 GL 1.6 .3	1.7 .5 2.0 .3 1.4 .4 1.4 .37 .2 1.7 .4 .2	1.4 .4 -1.5 .2 -2.7 . -1.5 .2 -2.7 . -1.8 .2 -1.5 .2 -2.5 .
0) Ref m(4) m(11) m(20)	.6 .4 -2.4 .2 -1.9 .2 -7 .4 9 .2 -2 .0 .2 -3 .3 -1.1 .2	.5 .4 -3 -1.1 .2 -6.7 . .5 .4 -3 -1.1 .2 -6.7 .	1.5 .3 .1 .2 .3 .5 .1 .1 .2 .3 .5 .1 .1 .2 .3 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1	SAC 1.7 .5 AGL 2.0 .3 SPC 1.4 .4 SPC 1.4 .4 SPC 1.4 .3 -2.7 .2 SPC 1.7 .4 .3 SPC 1.7 .4 .3	SPC
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) Ref m(4) m(11) m(20)	19 SAO 1.6 .4 -2.4 .2 39 SPC -1.9 .2 -1.9 .2 55 SAO 1.7 .49 .2 -1.9 .2 51 SPC 0 AGL 1.5 .3 -1.1 .2 39 SAO 1.8 .4	8 31 SPC -1.0 .2 1 8 SAO 1.5 .4 -1.1 .2 -6.7 . 2 37 SAO 1.5 .4 6 28 SAO 1.6 .4 7 25 SPC -1.1 .2 -2.6 . 2 30 SPC -2.6 .	24 AGL 1.5 .3 5 54 AGL 1.5 .3 6 54 AGL 1.3 .3 -1.7 .4 6 13 SPC6 .2 7 .4 -3.5 3 6 AGL 1.7 .37 .4 -3.5 6 AGL 1.7 .3 6 20 SAO 1.0 .4 148 AGL 1.6 .3	2 48 SAO 1.7 .5 3 48 AGL 2.0 .3 1 50 SPC 6 18 IRC 1.4 .4 4 16 SPC 4 0 AGL 1.4 .37 .2 2 47 SPC 2 4 SPC 4 6 IRC 1.7 .44 .2	8 SPC 24 SPC 22 SPC 22 SPC 22 SPC 55 SPC 1.4 .4
Dec(1950) Ref m(4) m(11) m(20)	7.1 +72 0 19 SAO 1.6 .4 -2.4 .2 7.6 +15 32 21 SPC -2.4 .2 5.1 +20 51 39 SPC -1.9 .2 4.2 +4.2 +4.2 5.2 SAO 1.7 .4 -9.2 -1.9 .2 -1.9 .2 8.0 +56 43 58 SPC -9.3 0 AGL 1.5 .3 -1.1 .2 4.6 +14 25 15 SPC -1.1 .2 -1.1 .2 9.5 -26 34 39 SAO 1.8 .4	5.7 +56 48 31 SPC -1.0 .2 5.8 +56 38 26 SPC -1.1 .2 9.5 -37 11 8 SAO 1.5 .4 4.4 +45 13 52 FIR -8 .2 5.9 -16 32 37 SAO 1.5 .4 9.0 -11 4 18 AGL 1.4 .3 1.2 +56 47 25 SPC -1.1 .2 -2.6 . 5.3 +11 59 13 SPC -1.1 .2 -2.6 .	7.0 -12 44 24 AGL 1.5 .3 6.0 -22 45 54 AGL 1.5 .3 -1.7 .4 6.3 +44 0 13 SPC6 .2 -6 .2 9.0 +13 42 36 AGL 1.7 .3 -7 .4 -3.5 9.0 +13 42 36 AGL 1.7 .3 -7 .4 -3.5 3.0 -18 21 48 AGL 1.6 .3	1 -27 52 48 SAO 1.7 .5 .0 -23 43 48 AGL 2.0 .3 .4 + 8 1 50 SPC .0 -37 36 18 IRC 1.4 .4 .6 +16 59 41 SPC .1 + 5 24 16 SPC .1 + 4 42 47 SPC .0 + 4 2 4 SPC .0 + 10 44 6 IRC 1.7 .4	3.3 +50 13 8 SPC 7.1 + 9 10 56 SPC 0.4 + 9 13 24 SPC 5.1 +55 8 27 SPC 5.8 +49 50 22 SPC 4.3 + 2 32 51 EIC 4.3 + 2 35 51 EIC 7.1 - 2 41 1 SPC 7.1 - 2 41 1 SPC 7.1 - 2 41 1 SPC 7.2 - 2.5 7.3 - 3.5 7.4 .2 7.5 .2 - 2.5 7.7 .2 7.7 .2 7.8 .2 7.8 .2 7.8 .2 7.9 .2
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Supplemental Table Of Observations

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4) m(11) m(20) m(27)	6 .3 8 .4 -1.3 .4 4 .4 -1.3 .2 -3.5 .5 9 .5 -1.4 .2 -1.9 .2 -1.9 .2 -1.0 .2	1.4 -1.1 .2 -1.2 .2 -2.6 .3 -1.1 .2 -2.6 .3 -1.1 .2 -3.9 .5 -2.4 .3 -1.1 .2 -1.1 .2 -1.1 .2 -5 .4 .3 -1.1 .2 -1.1 .2 -5 .4 .3 -1.1 .2	9.2 .5.4 -1.0.5 -2.6.7 -2.6.3 M3 .7.4 -1.0.5 -2.6.7 -2.9.3 -2.2.2 -2.9.3 -2.3.2 -2.3.2 -2.9.3	.9 .5 .1 .2 .2 .2 .2 .2 .3 .2 .2 .3 .2 .4 .2 .2 .4 .2 .4 .2 .4 .2 .4 .2 .4 .2 .4 .2	.6 .4 .5 .4 .5 .4 .5 .4 .5 .4 .5 .4 .5 .4 .2 .3 .2 .7 .3 .1 .0 .2 .2 .3 .2

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Æ	6018 6017	6047	6078		
TMSS	40278 -30256 -30284 -10333	10304	-30259 -10335 -20310	30290	284 -30264 -30248E
AFGL	6710S 6711S 6711S 5032S 6713S 6714S 6714S 6716S 6716S	67175 67185 67195 50365 67205 18365 67215 67225 67235	67248 67258 67268 67278 50398 67288 18408 18428 50418	6730S 6731S 6732S 5044S 6733S 6734S 6735S 6735S 6735S 6735S	67395 67405 67415 67415 50465 50475 67425 67425 67425 87425 87425 87425
Spec Type	K0 1118 K3 G M7 M3	ທ X	X X 7 7 7 7 9 9 9 9 9 9 9 9 9 9 9 9 9 9	9 89	M7 MA
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m(20)	i <u>i</u>	2. 2. 2. 2. 4. 2. 2. 2. 2. 4. 2. 2. 4. 2. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3.	2 2 1 8 0 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2.2. 2. 2.2. 3.2. 2. 2.2. 2.3. 2. 2.2. 2.3. 2. 4.	21. 1. 18. 20. 2. 4. 2. 22. 2. 23.
m(11) m(20)	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	6 6 6 6 8 4	 α ο ινι	- 0 - r - r - r - r - r - r - r - r - r	22. 2. 18 22. 2. 23.
(11)	5. 4 . 1 . 2 . 9 . 2 9 . 2 9 . 2	2 2 2 2 2 2 2 2 2 2 3 8 8 2 2 3 8		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2 2 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5

Supplemental Table Of Observations

COLOR CONTROL STREET, CONTROL
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-	17.5 344.8 58.9	357.6	31.5	14.9	59.9	48.2	. 0. - 0.	68.0	67.8	60.09	60.4	08.3	28.3	55.7	351.8	55.8	21.1	56.0	26.7	23.2	60.9 98 4	26.3	347.7	358.5 5.8	3.9	60	9	٠ د			<u>.</u> ن	4.4	•
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£							6154	•																		6196							
TMSS	285 -30250 e	-20317		287			20302										10308 -30255E						6	-20323	·)	-20325						-10346	
AFGL	5049S 5050S 6745S	50515	50525 67485	5053S 6749S	67505	67518	6752S 6753S	67545	67565	6757S 1866S	67585	67595	67615	67625	50578	67645	5058S 5061S	67655	67665	67675	67685	67708	18775	50625	67715	18825	67728	5773S 6774S	67755	67765	67785	5064S	1000
Spec Type	E E	8		NS.			X G										ws							χ Συ Συ	<u>}</u>	11 85						M1	
m(27)	•	0.51	0.01	•			-3.0																					0			-2.8 .3		
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m(27)	. 2 . 2	. 0.51	3.	.3 .2	3.3	.0 .2		-2.9	. a		Ŋ	တ္ (٥٠	ı ب	,	 	ı	4	3.4	2.7	m m	-2.9 .			0		2.4	3.0.2	3.2.2		3.0 .2	6	· ?
) m(20) m(27)	. 2 . 2	. 0.51	3.	.3 .2	. 6.6.	-2.0.2	-3.0	-2.9	. a		Ŋ	တ္ (٥٠	ı ب	,	 	ı	4	3.4	2.7	-3.3	-2.9 .	.3 .3	4. 6.	-2.0	1.5.3	- 4.5-	3.0.2	3.2.2		3.0 .2	6	· ?
Ref m(4) m(11) m(20) m(27)	4 SAO 1.5 .4 9 SAO 1.5 .3 3 SPC -3.2 .2	4 SPC 1.1 .3	0.57C	6 SAO 1.6 .4 -3.3 .2	5 SPC -3.3 .	4 SPC	2 SPC -3.0	6 SPC -2.9	5 SPC 13.1 .	9 SPC -3.1 . 6 AGL 1.8 .3	4 SPC -2.2	9 SPC -1.6	7 SPC -4.2	4 SPC	2 AGL 1.2 .4	0 SPC 18:22 .	1 EIC 1.9.4 6 IRC 2.1.4	700 9	0 SPC	7 SPC	5 SBC -3.3	2 SPC 2.9 .	0 AGL 1.3 .3	5 SAU 1.3	3 SPC 2.0 -	SA0 1.5 .	SPC -2.4 .	SPC -3.0 .2		0.6-1	5.0.5. SPC	SAO 1.5 .4	
Ref m(4) m(11) m(20) m(27)	2 58 54 SAO 1.5 .4 5 34 49 SAO 1.5 .3 6 46 3 SPC -3.2 .2	9 14 12 ISC 1.1 .3	3 26 48 AGL 1.5 .3 5 56 26 AGL 1.5 .3	0 1 6 SAO 1.6 .4 -3.3 .2	7 26 45 SPC -3.3 .	8 45 4 2 PC 1.4 .3 -2.0 .2	7 24 42 SPC -3.0 2 19 43 SPC .2 .2	3 20 46 SPC -2.9	7 41 45 SPC -3.1 .	7 31 9 SPC -3.1 .	7 46 4 SPC -2.2	5 23 29 SPC -1.6	3 12 28 SPC -2.6	4 14 24 SPC	7 56 42 AGL 1.2 .4	4 29 10 SPC	5 7 1 EIC 1.9 .4 5 23 6 IRC 2.1 .4	73 26 CDC -2 4	10 11 30 SPC	6 53 7 SPC ~2.1	38 2 45 SPC -3.3	9 45 22 SPC -2.9 .	33 56 30 AGL 1.3 .3	20 18 14 SAG 1.3 .	14 36 53 SPC -2.0 .	7 38 50 SAD 1.5 .	9 52 17 SPC -2.4 .	4 37 55 SPC -3.0 .2	7.57.31.5PC +3.2.2.2	14 34 SPC	7 33 8 SPC - 2.6 . 2 . 2 . 8	3 59 20 SAO 1.5 .4	י כיאר
m(4) m(11) m(20) m(27)	6 + 2 58 54 SAO 1.5 .4 4 -35 34 49 SAO 1.5 .3 1 +36 46 3 SPC -3.2 .2	2.0 +16 47 4 SPC -3.0	50.0 - 3 2 6 4 8 AGL 1.5 .3 - 2 0	26.1 - 0 1 6 SAO 1.6 .4 -3.3 .2	B 19.4 +37 26 45 SPC -3.3 .	3 4.0 - 10 20 42 Act 1.4 .3 -2.0 .2	8 52.6 - 7 24 42 SPC -3.0 9 4.0 +22 19 43 SPC .2 .2	9 16.1 +43 20 46 SPC	9 26.6 +37 41 45 SPC3.1 •	9 +37 31 9 SPC -3.1 . 0 -16 0 36 AGL 1.8 .3	0 48.5 +37 46 4 SPC -2.2	49.5 +75 23 29 SPC -1.6	34.2 +12 7 17 SPC -4.2	50.8 +34 14 24 SPC -3.3	48.0 -27 56 42 AGL 1.2 .4	9.3 +34 19 10 SPC -3.2 . 9.3 +34 18 40 SPC -3.2 .	5 + 5 7 1 EIC 1.9 .4 0 -35 23 6 IRC 2.1 .4	27 1 ±34 23 26 SBC -2 4	5 51.5 +10 11 30 SPC	6 11.0 + 6 53 7 SPC	6 17.6 +38 2 45 SPC -3.3	6 31.8 + 9 45 22 SPC2.9 .	7 18.0 -33 56 30 AGL 1.3 .3	0 18 14 SAO 1.3 .	8 29.3 -14 36 53 SPC -2.0 .	8 40.6 -17 38 50 SAD 1.5 .	9 18.9 + 9 52 17 SPC -2.4 ·	9 20.8 +34 37 55 SPC -3.0 .2	0 3:9 - / 18 49 3FC - 2:9 : 0 26:0 +17 57 31 SPC - 3:2 :2	1 10.2 +18 14 39 SPC	1 29.8 +18 4 37 5FC -3.0 .2 1 46.0 -17 33 8 5FC -2.8 .	59 20 SAO 1.5 .4	. 6.7

Supplemental Table Of Observations

	1	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	23.4 23.4 26.1 26.1 27.0 27.0 27.0 27.0 27.0 27.0 27.0 27.0	23.00.00 23.00.00 23.00.00 23.00.00 23.00.00 23.00.00 23.00.00 23.00.00 23.00.00 23.00.00 23.00.00	32.00 32.00 32.00 37.00 33.00 34.00 35.00 35.00 36.00
-	353.5 353.5 353.5 455.5 64.7	28.5 61.7 359.3 23.7 23.7 27.0 12.9 16.1 115.0 350.2	350.8 10.3 16.8 35.4 35.4	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	11. 353. 71. 103. 353. 75. 86.
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N N	4 A HER	23 OPH RX OPH 23 OPH EPS UMI GC 22801 54 HER	27 SCO DO 35515 V1055 OPH SS OPH	30 OPH V1241 OPH V1281 OPH V850 OPH	GC 23089 TU SCO
9	6228	6280 6322 6282 6293	6306 6306	6318	6364
N N	10320	10313 -20335 10314 -10351 -30268E 20309	-30270E 50259 -20340 -10353 -10354	294 -20343 -10356	20313 -30279 -30281
	655 655 805 805 835 835 845 845 845 875	67885 67895 50675 50685 67905 50695 67915 50725 50725	67928 50748 50775 50775 50768 19158 50798 67938	67945 50825 67955 67955 67975 67985 67995 68005 68005	68035 50865 50875 68045 50895 49255 68065
, de	MO IIIAB	MB M2 M5 K2 III G5 K4 III	K5 M2 IIIAB M3 M5E M6	K4 III M7 M8	K3 III MGE M8
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Supplemental Table Of Observations

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-	352.2 65.2 8.3 7.6 8.3 8.3 8.3	35.22 35.32 35.32 35.32 35.38 35.38 35.38	66.5 72.22 72.22 72.22 72.22 83.6 83.6 12.8 80.6 60.5	16.3 108.1 73.8 74.0 23.9 35.0 31.0 17.3	31.0 38.5 4.9 6.6 23.7 73.9 354.7 13.0 63.9
sqo	5	1 1 2 2 1 1 2 2 2 1	1 1 2 3 3 1 1 1 1 2 3 3 1 1 1 1 1 1 1 1	-11111-++1	1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1
Comments	u				
Nasen	V1655 DPH SVS 3043 36 DPH	V505 OPH DO 35650 UY OPH GC 23357 GC 23382	SVS 101644 FT SER 74 HER 43 OPH	AI OPH AK OPH	DO 4290
£	6401	6428 6433	6464 6459		
TMSS	-30286 -30288	-10361 50263 298 -20354	40296 -10365 50264 50264 -30291	-10367	10328 20324 20324 -20366
AFGL	68075 50935 50935 50948 68085 68095 19395 50955	68115 1946S 6812S 5097S 5098S 6813S 6814S 6815S 5100S	51035 51045 51055 68165 68175 68185 51065 68195 68205	5108S 6822S 6823S 6825S 6825S 6825S 5110S 6827S 5112S	51145 68295 19735 68305 68315 68325 51165 68345 68345
Spec Type	111 >	1 11 11	B IIIAB		_
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m(27) Spe			•	-2.5.3 -6.1.7 -3.5.3 M6	
ļ	6. 8. 8. 8. 8. 8. 7.		•	2.5 .3 6.1 .7	6. 6. 8. 7. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.
m(27)	4. 2. 2. 3. 3. 4. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.	.3 .2 M7 .3 .2 M6 .1 .2 M6 .1 .2 K5	2.5.5 2.9.2 2.9.2 2.4.2 2.8.2 3.4.2	2.4 .2 -2.5 .3 2.1 .2 2.0 .2 3.5 .6 -6.1 .7	.0 .2 .7 .2 -3.3 .3 K5
(11) m(20) m(27)	4. 2. 2. 3. 3. 4. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.	-1.3.2 M7 -1.3.2 M6 .2.2 _2.1.2	M7 -2.9.5.5 -2.9.2 -2.4.2 -2.8.2 -3.4.2 -3.4.2	1.0 .2	-2.0 .2 -2.7 .2 -3.3 .3 K5

Supplemental Table Of Observations

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-	108.3 79.6 97.3				•	38.6	•	•	4.4	6		9.01	æ :	40.6	75.3	S	358.1					6.6							21.5	ر ا ا	7.7	90.0	25.3	19.9	64.9	53.8	7.9	35.5	23.B		3 6		S		00	ш	Œ	ш	81.7	-
sqo	1-5-	2-1	- 5-	-04	13-	<u>:</u>	-	-8-	<u>!</u>	2-1	-5-	<u>!</u>	<u>!</u> ,	-8-	-8-	-	-8-	<u>;</u>		-8-							!	•	<u> </u>	ļ		7.	[]	Į.	-5-	- 2	<u>!</u> .	5.5	1	- 5	י ו	0 (-2-		-8-	1-1	-S-	-5-	5	,
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£	6536											6561			6574												6602																							
TMSS	50266	-20369			-10370		-10372		-20371	-20372		-20373	-10374		50269	-20375		20376	Š			-20377	-20380		-30317		20329		316		30311						-20382		9	9				-30322		20331	ı			
AFGL	68355 51185 68365	19825	683/5	68395	51195	1986S	51218	68405	51225	1990S	68415	51235		68425	68435	51265	6844S	27070	51380	68455	68465	68475	51315	68485	68495	68505	51325		51335	68515	68525	68535	68545	68555	68565	68575	51348	68585	51250	00000	00000	68603	68615	51365	68625	51375	68635	68645	6000 6000 6000 6000	2000
Spec Type	G2 IB	M2			Z.		M7		M7	w 6		FO IV	1 2		<u>۲</u> ۵	М6		7.73	. X	2		M9	M7		M3		K4 111	•	We	•	M7						C2		78	È				M1-3 I		9				
Š	g	≥																																						•										
m(27) Si	9	2												-3.8.3						-2.9.3						-3.4 .3	•				,	-2.6 .3			-2.5 .3			-2.2 .3		•	7. 1.0									
27)	9	,	2. 7. 1.	4				-2.4.2			-1.9 .2			œ						σ					-1.5 .2	4	•				,	-2.6	-2.3.2		•					,	•	7. 7.7-						-1.4.2	•	
m(27)	8.2	•	· ·	.2 .2 -1.4 .				4			.9			-3.8	.0.		-1.4 .2			σ	-2.7.2			4 .2	.2 .2 -1.5 .	3.4	•		L		,	3 .2 -2.6 .	72.3		-2.5 .	2. 6				•	•	. 7.7.			6 .2		6 .2	-1.4	•	•
(11) m(20) m(27)	8. c.	•	· ·	.2 .2 -1.4 .	.7 .42 .2	1.9.3	7· F.	4	5 .48 .4	4. e.	.9	ស	p. p.	-3.8	0.	1.5 .4	-1.4	-		. 9.6-	-2.7.2	.0 .2	1.7.4	4.	.2 .2 -1.5 .	3.4	•		L		2.0	3 .2 -2.6 .	72.3	.7 .2	-2.5 .	6.1			4		•	. 7.7.	1		9.1	1.5 .3	9.1	-1.4		•

Supplemental Table Of Observations

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-	25.8 7.00 72.3 72.3 72.5 72.5 71.2 31.9	71.3 31.5 8.2 83.0 83.0 83.2 71.2 72.7	264.4 264.4 26.1 27.1 27.1 27.1 27.1 27.1 27.1 27.1 27	27.7.7. 2.7.7. 2.0.4.4. 2.0.4.4. 4.1.4.4.	72.6 83.1 72.4 71.4 67.7 30.3 356.1 72.4
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£		6630			
TMSS	-30323	10336 -20388 30314 -30378E	20333	-30327 20336	10338 -30382E -30330
AFGL	6866S 2005S 5138S 6867S 6868S 6869S 6870S 5140S	6872S 6873S 5141S 5142S 6874S 6875S 6877S 6877S 6877S	51455 68805 68815 68835 51445 68845 68855 68865 68865	68888 68908 51488 51478 68918 68928 68928 68938	68945 68965 68965 68965 68985 68985 69005 69000 69000
Spec Type	RE D		ш		
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m(27) Sr	M 7.		M M6 .3 .3 .3 .3	W W	2. 2. 4. 4. 5. 3. 3. 3. 4. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8.
ļ	1.3.2 2.4.2 1.2.4.2 1.2.4.3	ກຸກ ຕຸຕຸ	ო . ო	M6 2-3.3.2	હેલું હું
m(27)	હે હેવે∸ તું તૃંધું	2. 2. 2. 3. 3. 4. 5. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.	6 6 2 6 2 6 2 6 2 6 7 6 7 6 7 6 7 6 7 6	3.3	
11) m(20) m(27)	1.3.2 -3.3.2 -2.4.2 -9.2	.1 .2 -3.2 .2 .3 .4 .3 .5 .3 .4 .5 .3 .4 .5 .3 .5 .3 .5 .3 .5 .3 .5 .3 .5 .3 .5 .3 .5 .3 .5 .3 .5 .3 .5 .3 .5 .3 .5 .3 .5 .3 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	9.2	1.12 1.72 1.72 1.62 2.52 332	. 2 . 2 . 3 . 3 . 3 . 3 . 3 . 3 . 3 . 3

Supplemental Table Of Observations

۵	20.23 30.23 30.22 28.72 11.53 11.54 11.55	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	4.18 6.0 1 - 20 C	21.3 21.3 21.3 20.0 20.0 20.0 20.0	64221 64221 6446-66860
-	31.1 82.8 83.0 83.0 72.5 74.4 77.3 77.3 75.3	353.9 4.8 77.8 32.0 59.6 71.4 71.4 55.4	359.6 21.4 21.4 6.3 357.5 8.3 19.8	23.75 23.75 35.75 23.75 23.75 23.75 23.75 23.75 23.75 23.75	1387 238 23 24 24 24 24 24 24 24 24 24 24 24 24 24
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Æ		6703	6693	6713 6715 6728	6726
TMSS	-10385 -30333 -10386 330	-30383E 30323 80034 30322 -20407 30324	-30341 -10388 -30343 -10389 -20410 -30389E	20340 20341 -20412 10345 -30391E -20414	20343 20343 20343 -20420 -10391
AFGL	69028 69038 69048 69055 69065 51558 51558 51558 69076 51578	6908S 6909S 6909S 5158S 6911S 5163S 6913S 6913S 6913S	69145 69155 51645 69165 51665 51655 51675 69175	69198 51688 51698 51708 51718 69208 51738 69218	51745 69225 69225 69235 69245 51805 51705 51815 51815
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Supplemental Table Of Observations

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Æ		6742	6766		6820
TMSS	-20422 -30347 20345 -10393	-30351 -30348 -30352 -30353 -30353	-30356 -10397 10348 -30359 -20433	-20440 -10403 -20441 -10435	-20447 -204447 30329 20353 -20450
AFGL	69265 51825 51835 69275 51855 69285 51875 51885	69308 69318 51898 51908 69328 69338 51928 69348 69348	51955 51965 51975 69365 69375 69385 69395 69405 51985	69415 69425 69435 52025 69445 52035 69455 69465	69478 52085 52078 52108 52098 69488 69498 69498 69498
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(11) m(20) m(27)	7.2 -3.0.2 1.1.4 -3.0.2 1.5.2 -1.4.2	-2.1.2 -3.8.3 1.2.2 -1.3.2 4.2 -2.8.2 5.2	0 .2 -2.3 .2 -3.6 .3 0 .2 -1.5 .2 -3.6 .3	.3 .2 -2.6 .2 .8 .2 -2.6 .2 .3 .2 -2.8 .3 M —1.8 .2 M M M	.5 .2 .1 .2 .3 .2 .3 .2 -1.8 .2 -3.2 .3

Supplemental Table Of Observations

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-	358.2 105.5 105.5 14.4 12.3 12.3 12.3 12.3 12.3 12.3 12.3	43.54 43.54 44.8 13.9 32.3 6.4 6.7 7	8.444 6.454 7.754 7.754 7.754 7.754 7.754 7.754	64-044444 64444444 0074-00-0-	353.0 16.0 353.0 16.0
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H.					6862
TMSS		6 4	-20457 -20458 10354		-30408 E -20469 -20471
AFGL	6951S 6952S 6953S 6954S 6955S 6956S 2099S 2100S 6957S	69595 69605 69615 69635 69645 52145 52155 69655	6967S 6968S 6969S 5216S 5217S 6970S 6971S 5218S	52195 69745 69755 69765 52215 69775 69785 69805	69825 69835 69845 69855 69865 69865 69865 69885 69885
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) m(20) m(27) s	-3.5.2 -2.7.2 -2.9.4 -2.5.2 -2.3.2 -2.9.4 -2.1.3.2	-2.6.2 -2.5.2 -1.4.2 -1.8.3 -2.6.2 -3.3.3	2 -2.7.2 -3.7.3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3	-2.4.2 -3.5.2 -3.5.2 -3.7.3 -3.4.3 -3.4.3
(11) m(20) m(27) S	.1 .2 .2 .2 .2 .3 .2 .3 .2 .3 .2 .3 .2 .3 .3 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3	-2.6.2 -2.5.2 -2.6.2 -1.4.2 -1.8.3 -2.2 -1.8.3 -2.6.2 -3.3.3	1.3.2 -2.7.2 -3.2 -1.2 -5.2	2. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.	.0 .2 -3.5 .3 .3 .5 .3 .3 .3 .3 .3 .3
(1950) Ref m(4) m(11) m(20) m(27) S	23 27 SPC 35 13 SPC 36 50 SPC 20 56 SPC 20 56 SPC 40 43 SPC 54 44 SPC 55 30 A AGL 16 43 SPC 14 26 SPC 15 20 30 4 AGL 16 43 SPC 16 20 50 50 50 50 60 60 60 60 60 60 60 60 60 60 60 60 60	55 15 SPC 45 55 SPC 18 54 SPC 0 24 SPC 15 38 SPC 43 13 SPC 43 13 SPC 56 2 -2.6 .2 -1.1 .2 -1.8 .3 -2 .2 .2 -1.4 .2 -1.8 .3 -2 .2 .2 -2 .5 .2 -1.4 .2 -1.8 .3 -2 .2 .2 -3 .3 .3	12 12 SPC -1.3 .2 -3.7 .3 2 2 3.2 SPC 18 24 IRC 1.8 .4 5 23 SPC 45 3 SPC -3.7 .2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	37 30 AGL 1.5 .3 -2.3 . 57 51 5PC -1.2 .2 -2.3 . 45 5 SPC -1.2 .2 -9 .2 . 41 1.2 AGL -1 .3 -3 .2 . 55 17 SPC -1.4 .2 .3 .1 .3 .1 .4 SPC -1.4 .2 .3 .1 .3	44 1 SPC 47 19 SPC 36 56 SPC 34 30 IRC 14 53 SPC 47 19 SPC 36 56 SPC 37 30 IRC 40 48 SAD 40 58 SAD 4
0) Ref m(4) m(11) m(20) m(27) S	3 27 SPC -1.2 -3.5.2 -2.7. 5 0 SPC -1.2 -2.7. 5 0 SPC -1.2 -2.7. 6 43 SPC -9.2 -2.1. 5 3 4 AGL -9.2 -2.9.4 -2.1. 6 43 SPC -2.5.2 -2.3.	5 55 SPC 8 54 SPC 0 24 SPC 13 SPC 13 SPC 14 .2 -1.6 .2 -2.5 .2 -2.6 .2 -1.4 .2 -1.8 .3 5 38 SPC -1.1 .2 -1.4 .2 -1.8 .3 5 4 A A G L 1.4 .3 6 4 2 SPC 4 20 SPC -2 .2 .2 -3.3 .3	2 12 SPC -1.3 .2 -3.7 .3 2 2 3.2 SPC 8 24 IRC 1.8 .4 6 2.7 .2 -3.7 .3 6 2.7 SPC -1.3 .2 -2.7 .2 -3.7 .3 8 SPC -3 .3 .2 6 3.8 SPC -3 .2 6 3.8 SPC -3 .2 6 3.8 SPC -5 .3 .2 6 3.9 SPC -5 .2 .3 .2 6 3.9 SPC -5 .2 .3 .2	7 30 A5L 1.5 .3	1 SPC 29 SPC 19 SPC 56 SPC 30 IRC 1.3 .4 2 SPC 43 SAC 43 SAC 57 SPC 57 SPC

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Supplemental Table Of Observations

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-	44.8 9.7.4 25.7.7 27.9 16.3 16.6 44.2	103.55 223.55 358.99 17.99 356.29	4 7 9 8 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	22.23 22.23 22.23 23.25 23.57 24.66 6.66 6.66 6.66 6.66 6.66 6.66 6.6	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
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Ŧ	6884	6927	6945		6966 1964
TMSS	-20473 70143 348 -10417	70144 -10418 40316 -10419	-20483 -20486 -20486 70145 -10428	-10430 -10431 -20490 30336 -20493 354	20366 -20495 356 -10436 -10362
AFGL	69908 69918 21418 52318 69928 69938 69948 69958	69978 69988 21448 52338 52328 70008 52348 70018	5236S 7003S 7004S 7004S 7005S 5238S 5239S 7006S	52448 70078 52468 52478 52488 70088 52588 52498	52558 52558 52568 70098 70108 70118 70128
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m(27)	-5.5.3 M3 M3 N 2.5.2 2.5.2 3.2.2	.9 .2 -4.1 .3 F7 M8 M8 -3 .1 .3 M2 -5.3 M2 -5.3 M2	.1.3 MSE .0.3 MSE .3 K2	M5 54. 84. 85. 93 85. 95. 98. 85. 98. 98. 98. 98. 98. 98. 98. 98. 98. 98	7. 7 .2 -3.1 .3 M0
(11) m(20) m(27)	.3 .2	.9 .2 .4.1 .3 F7 M8 M8	.6 .2 -3.1 .3 MSE -3.0 .3 MS M3 M3 K2 -3.3 .3 S	1.7 .4 M5 1.6 .5 -3.5 .5 M6 2.3 .5 -2.8 .6 M2	K44 K44 M6 M2 -3.6.3 -4.1.3 -1.3.2 -1.4.2 -3.1.3 M0

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	11 39 5 SPC -1.0 .	6 25 3 EIC 1.5 .4	2/ 58 3 5/C . 3 . 3 . 3 . 3 . 3 . 3 . 3 . 3 . 3 .	23 33 3 150 1:4 :4 -2 28 44 12 AG	19 15 9 SAO 1.5 .4	30 26 18 AGL	31 17 36 AGL	12 24 54 IRC 1.6 .4	20 11 04 861	14 42 42 AGL	22 40 12 IRC 1.2 .4	28 41 54 IRC 1.5 .3	20 24 24 350 1:4 :4 30 270 270 270 270 270 270 270 270 270 27	4 59 52 SP	4 50 31 SPC	4 17 0 IRC 1.6 .	6 2 52 SAO 1.8 .	5 58 22 SPC	21 36 59	6 23 12 ETC 4 6	7 23 12 SAG 1 4	5 49 58 SPC	0 18 12 AG	3 27 53 SP	2 58 5 SPC	1 23 16 SAO 1.6 .	8 19 35 5AU 1.2 . 1 36 37 SAU 1.1 .		9 45 26 SAG 1.3 .	9 16 33 5	7 27 12 IRC 1.1 .	3 28 47 S	2 22 14 SPC	2 26 47 SAU 1.8 .	0 41 23 SAU 1.4 .	2 3 20 SPC		0 30 IRC 1.5	9 50 25 570	5 23 58 EIC 1.3 .	12 23 8 SAU 1.6 .	42 43 48 AG	16 30 44 SP	2 58 18 SP	19 3 30 IRC .8 .
	.0 -11 39 5 SPC -1.0 .	3 + 6 25 3 EIC 1.5 .4	. 3 - 2 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 -	.0 +28 44 12 AG	.3 -19 15 9 SAO 1.5 .4	.0 +30 26 18 AGL	.0 +31 17 36 AGL	.0 -12 24 54 IRC 1.6 .4	104 40 11 60+ 0:	0 +14 42 42 AGL	+22 40 12 IRC 1.2 .4	0 -28 41 54 IKC 1.5 .3	8 +30 24 24 37 114 14 B +70 36 23 SPC	- 4 59 52 SP	4 - 4 50 31 SPC	0 +74 17 0 IRC 1.6 .	1 +46 2 52 SAO 1.8 .	1 +65 58 22 SPC	- 3 21 36 SP	T E 23 12 ETC 4 E	- 7 23 12 CAC 1.6 .	9 -45 49 58 SPC	0 +10 18 12 AG	9 -43 27 53 SP	1 - 2 58 5 SPC	5 -11 23 16 SAQ 1.6 .	36 37 SAU 1.2 .		9 45 26 SAG 1.3 .	2 2 2 3 3 3 5	0 +17 27 12 IRC 1.1 .	- 3 28 47 S	2 - 2 22 14 SPC	-22 26 47 SAU 1.8 .	2 - 20 41 63 SAU 1.4 .	+72 3 20 SPC		. 5 - 3 0 30 IRC 1.5 .	.1 = 9 50 25 SPC	.4 + 5 23 58 EIC 1.3 .	.8 =12 23 8 SAU 1.6 .	0 +42 43 48 AG	.8 - 16 30 44 SP	.0 - 2 58 18 SP	.0 +19 3 30 IRC .8 .
	5.0 -11 39 5 SPC -1.0 .	57.3 + 6.25 3 EIC 1.5 .4	72 0 - 72 55 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	31.0 +28 44 12 AG	10.3 -19 15 9 SAO 1.5 .4	23.0 +30 26 18 AGL	13.0 +31 17 36 AGL	18.0 -12 24 54 18C 1.6 .4	23.0 +33 11 34 AGE	0 +14 42 42 AGL	1.0 +22 40 12 IRC 1.2 .4	38.0 -28 41 54 IRC 1.5 .3	44.6 +30 24 24 350 1.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .	50.9 - 4 59 52 SP	.4 - 4 50 31 SPC	55.0 +74 17 0 IRC 1.6 .	1.1 +46 2 52 SAO 1.8 .	7.1 +65 58 22 SPC	7.4 - 3.21.36.SP	15 0 ± 6 32 12 FTC + 6	35 6 - 7 23 13 SAC 1 4	36.9 -45 49 58 SPC	7.0 +10 18 12 AG	26.9 -43 27 53 SP	43.1 - 2 58 5 SPC	44.5 -11 23 16 SAQ 1.6 .	7.8 - 8 19 35 SAU 1.2 . 1.7 - 1 36 37 SAO 1.1 .		9 +29 45 26 SAO 1.3 .	5.9 - 9 - 6.3	32.0 +17 27 12 IRC 1.1 .	49.4 - 3 28 47 S	4.2 - 2 22 14 SPC	79.7 -22.26.47.5AU 1.8 .	26 2 -28 41 23 SAU 1.4 .	43.9 +72 3 20 SPC		54.0 - 3 0 30 IRC 1.5 .	54.1 = 9 50 25 SPC	53.4 + 5.23.58 EIC 1.3 .	20.8 =12 23 8 SAU 1.6 .	0.0 +42 43 48 AG	8 - 16 30 44 SP	33.0 - 2 58 18 SP	7.0 +19 3 30 IRC .8 .

Supplemental Table Of Observations

۵	7.7.7 6.2.7 7.0.6	26.28 26.28 26.28 26.28	4 6 7 6 8 6 8 6 8 6 8 6 8 6 8 6 8 6 8 6 8	1.6 2.3.8 2.02 4.05 1.4.0 1.4.0 1.3.0 1.4.0	0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
-	8 8 8 3 4 5 6 6 8 8 8 8 9 6 9 6 9 9 9 9 9 9 9 9 9 9	2.4.1.2.2.2.2.4.4.4.4.2.2.2.2.2.2.2.2.2.	23.00 20.00	2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00	353.1 102.1 102.1 102.1 102.1 102.1 102.1 103.1
Ops	2	1111111400	7	8	1 1 1 - 0 1
Comments	E 60		E O		
Noses	DO 5112 DO 17051 SHARP. 67 GC 25801 SY SCT	DD 17089 IV SCT DD 17095 0H30.1-0.7 CS HER	DS SCT HM LYR OMI DRA SW SCT DO 5176	GC 25935 GC 25942 T SCT	UPS DRA DO 17253 DO 5239 LAM LYR
¥	7083		7125	7137	7180
TMSS	380 20377 -1046 5	20378 -10470 20379 384	50285 386 60259 -10472	50286 30346 10385 -10475 -30397	70147 30348 10390 30350
AFGL	5300S 5299S 2257S 5302S 7033S 7034S 5304S 7035S	5306S 5308S 5307S 2263S 5310S 5309S 7036S 7036S	22698 70398 53118 53128 53138 53148 53158 53158 53168	7040S 7041S 5319S 7042S 5320S 5322S 5322S 5323S 5324S	70435 70445 70455 53265 22945 53285 70465 53305
Type				- 0	b-d
Spec	M M M M M M M M M M M M M M M M M M M	X X X X	M M M M M M M M M M M M M M M M M M M	G8 III K4 G M0 RED C7,4 M4	KO III M6.5 K3 II
m(27) Spec	ũ	M M M M M M M M M M M M M M M M M M M		•	ii 6. II
8	6 .3 KO MAS CB. 3.	2.5 4.5 6. 6.	M8 M8 X0 X0 X0 M7 M7	6. 1. 6. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8.	e. MK MS II MG. S II EX
m(27) S	.7 .4 M5 .0 .2 -3.6 .3 K0 .9 .4 -2.4 .3 C8.2	6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6	.3 .2 M8 .6 .2 M6 .0 .4 -6.4 .7 M7 .2 .6 M3	1.3 .2 -3.1 .3 2.8 .4 K4 M0 C7.	.8 .2 -2.5 .3 KO II M5 .5 .3 .2 K3 II
(11) m(20) m(27) S	.5 .2 -3.7 .4 M5 .2 .2 -2.0 .2 -3.6 .3 K0 .8 .2 -2.9 .4 -2.4 .3 C8.2	1.0 .5 -1.0 .2 8 .5 -3.3 .4 2 .2 -2.3 .2 -3.2 .3	2 .2 .2 .2 .8 M87 .46 .2 M6 1.6 .4 -3.0 .4 -6.4 .7 M7 0.0 .4 -2.2 .6 M3	.5 .2 -1.3 .2 -3.1 .3 .8 .2 -2.8 .4 K4 M0 C7.	.2.2.2 -1.8.2 -2.5.3 KO II M5 M6.5 -2.3.2 K3 II -3.5.4

Supplemental Table Of Observations

AZOZOF PARAGORRA - PARAGORRAN - PARAGORRAN - ROBERTARIAN -

۵	10104014-	1.00.00.00.00.00.00.00.00.00.00.00.00.00	7000000000	E 2 E. 2 4 . 4 . 4 . 4 . 4 . 4 . 4 . 4 . 4 .	0044000044
-	37.4 56.9 39.2 60.4 60.4 128.1 128.1 170.0 63.0	6 6 6 6 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	23.3 68.0 20.0 11.0 64.4 98.2 77.1 1.4	37.8 60.2 45.9 48.6 88.5 52.1 105.2 66.7	28.3 104.7 104.7 104.7 30.7 11.7 11.7
sq0	15-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2 1 2 2 1 2 2 1 2 2 1 2 2 2 2 2 2 2 2 2	3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	\$ 1 2 1 2 1 5 1 8
Comments					
Names	AN VUL YZ LYR DO 5323 AE SGR DO 17381	DG 17399 SVS 101803	OU LYR U DRA	V842 AQL E1 LYR GC 26506 DO 17555 54 DRA DO 37074 DW LYR	V924 SGR TAU DRA DO 17633 GC 26655
Ĭ	7237	7244		7309	7352
TMSS	30351 -10487 -10488 30353	30357 413 20388	30362 70149	416 10412 10413 60264 20391 70151	-30444E -20551 70153 30367 -10501
AFGL	70475 23135 23135 703135 73335 53335 53365 53375 53375	70698 70508 53408 23228 23228 53428 53448 53448 53458	70518 53488 70528 70538 70538 53498 70548 70558 70568	53508 23448 53518 53538 53548 53558 23558 23558 53558	70588 70598 53598 53648 53628 70608 73618 70658
Spec Type	M2 M8 M7 M9 M0 111A	0 0 0 0 0 0	M GE S M GE	M5 K2 M3 M3 G M3 G	M
m(27)					e. e. e.
m(20)	22.6.1 6.2 88.8.2 6.2 48.4.2 4.0	2.5.6. 6 8.1.8.1 0 8.1.8.1 0	2112 4.112 2.112 2.112	6. 	2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2
m(11)		4. 1. 4. 4.	6 4. G 6.	1. 1. 1. 4. 6. 6. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7.	. 6. 6.
m(4)	4 6.	6	E. E. E. E.	440040V	2
RA(1950) Dec(1950) Ref	4 33 41 S 0 +25 15 54 A 0 +29 15 18 A 3 +71 41 55 E 9 - 7 12 55 E 0 -12 46 24 1 0 +39 10 30 A	9 3 30.1 -30 48 17 SPC 9 3 31.9 -31 7 46 SPC 9 3 32.0 + 3 6 6 AGL 9 5 30.0 -12 45 18 AGL 9 6 13.0 - 4 8 24 1RC 9 6 13.6 +24 5 54 SAU 9 7 58.0 + 7 43 30 AGL 9 7 59.0 +35 8 0 AGL	9 8 2.1 -13 15 55 SPC 19 8 39.0 +36 30 39 AGL 19 9 37.4 -17 1 40 SPC 19 9 44.3 +32 31 12 SPC 19 9 56.6 +67 12 1 CIO 19 10 28.1 -37 58 SPC 19 10 55.3 -36 31 8 SPC 19 11 3.6 -36 50 47 SPC 19 11 4.0 +25 55 56 AGL	9 11 23.5 + 2 32 19 SAQ 9 11 27.0 +27 39 54 AGL 9 12 41.8 +14 35 0 SAQ 9 13 1.6 +57 37 6 SAQ 9 13 20.8 +18 25 38 SAQ 9 13 20.0 -10 7 24 AGL 9 13 48.9 +73 46 44 SPC 9 14 8.0 +34 35 18 AGL 9 14 26.0 +22 24 6 AGL	19 15 5.5 - 8 36 20 SPC 19 15 18.2 - 36 38 46 SPC 19 15 28.0 - 19 27 0 IRC 19 16 31.5 + 73 15 48 SAO 19 17 4.2 + 27 10 5 SAO 19 17 18.9 - 6 10 6 SPC 19 17 21.6 - 6 43 18 SAO 19 17 41.0 - 26 33 43 SPC 19 17 50.1 - 37 21 20 SPC

Supplemental Table Of Observations

۵	8.21-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	222-1 222-1 16.03-1 12.03-1 10	1 2 1 1 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1.22 1.24 1.24 1.24 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30
-	32.2 72.6 73.5 33.6 43.1 52.5 68.7	354.8 48.6 70.0 38.0 354.8 48.6	53.52 22.52 24.1.4 27.5 33.9 354.3 27.7 7.7	81.0 4.00 1.00	59.0 65.0 38.6 34.9 37.7 80.3 25.9
Sq0	222-9-	E			111811111
Comments		ш	K4-27	O	
Nomes	GC 26676 DO 37124 U LYR HO LYR DO 5651 V1126 AQL DO 17726 DO 17733 NGC 6798	DO 37274 DO 37260 AN SGR DO 17749 V532 AQL	V1133 AQL V976 AQL DN AQL	GM AQL V621 AQL V1138 AQL HM CYG GD AQL V895 CYG	SVS 101861 V607 AQL V862 AQL
Ĩ		7391		7448	
TMSS	425 40344 40345 40345 -10510 20400 40346	70154 70155 -20562 20405 436	-20564	10427 40349 -20567 60268	200415 30375 445 446
AFGL	5366S 5367S 5367S 5368S 5368S 5377S 5377S 5373S 5374S	23865 53755 23875 53765 53785 53795 53795 70635 53945	53815 53805 53835 70645 70655 53845 70665 70675 53855	53875 53888 53888 53990 53905 53925 53935 53955	53988 53998 54008 70688 54028 54038 54048 54068
Spec Type	. I Se II	II 11 18		I I I	
Spe	M	M M M M M M M M M M M M M M M M M M M	x 8	MS AX	X Σ Σ Ω ν ο α
m(27) Spe	A M O M M M M M M M M M M M M M M M M M	MO M7 M0 M5E	-2.0.9 M4	ro roro 4.	X X X X X X X X X X X X X X X X X X X
ì	MO MS M2F. M6 M6 M6 M7	-1.9.5 MO M7 M7 M5E M0	o.	. E. MS MS AX AX AX	13.0 .6 12.7 .5 M M M M M M M M M M M M M M M M M M M
m(27)	r.	8. 2. 2. 4. 4. 0. 3. M. 7. M.	n. n. 4.	3.2 .4 M5 3.6 .4 -6.3 .6 M5 3.2 .4 K4	o.v.o o.v.o. v.
(11) m(20) m(27)	7.7.4 7.6.5 1.3.4 -3.0.5	-2.8.5 M0 -1.9.2 M7 M5 .9.4 -3.1.4 M5	-3.0 .5 1.2 .4 -2.9 .5 -2.0 .9 1.3 .2 -5 .2 1.0 .2 -3.0 .4	M5 M5 -3.6 .4 -6.3 .6 M5	8 . 2 . 4 . 4 . 4 . 4 . 4 . 4 . 4 . 4 . 4

Supplemental Table Of Observations

SECOND PRODUCTION OF STREET

٥	4461.441.242	1.27 1.27 1.28 1.20 1.20 1.20 1.20 1.20 1.20 1.20 1.20	17.3 -28.9 -27.5 -28.9 -16.8 -16.4 -16.4 -27.7	224.01-1-28.92-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-	2.00.1 1.00.00.1 1.00.00.1 1.00.00.1
-	49.0 56.4 44.1 65.7 65.7 65.2 53.1 65.0	355.0 67.4 857.4 355.4 347.1 19.2 347.7 75.8	91.8 355.6 347.7 347.7 59.4 59.4 52.1 75.6 356.1	84.0 9.09.0 9.09.0 9.09.0 9.09.0 9.09.0 9.09.0 9.09.0 9.09.0	34 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
sqo	1 * 1 1 1 1 1 1 1 1 8	1811811	E0 15 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Comments			ш ш		
Names	V826 AQL SVS 4763 LW AQL DO 17969 DO 17970 PHI CYG		V462 AQL DO 37664	R1 CYG 10 CYG D0 37673 15 CYG SVS 4795 V969 CYG	V976 CYG V4026 SGR V446 AQL SVS 4826
Æ	7475		7514	7517	
TMSS	20422 20424 30380	40359	20429 10436 40360	50306 50307 40361 60271	30390 -20574 30392
AFGL	24215 70705 54085 54095 54105 54125 54135 54145 70715	70725 70735 70735 70745 70755 70765 70775 70775	54155 70805 70815 70825 54175 54185 70835 54195 54225	54208 24448 70858 70865 54245 54215 54235 70878	7088S 2451S 5427S 5428S 5428S 5428S 7089S 7089S 7090S 5431S
c Type	111 111		5 IIIAB	## ##	11
Spec	Σ X Ω Ω 4 Β	×	M6	M3E M3 G8 3 M7	M6.5 M5 1 M2 C5.3
m(27) Spe	-5.3 .8 M3 -6.4 .6 K4	-2.7.3 -2.7.3 M7	•	w	• •
27)	6. 4. 8. 0.	. r.	•	w	• •
m(27)	2. 6. 2 3. 8. 2 3. 8. 4 3. 2. 4 5. 7. 7. 7. 7. 8 6. 4. 8	2. 6 .2 3.8 .2 3.8 .2 3.4 .2 -2.7 .3 3.4 .2 -2.7 .3	2.5.2 3.4.2 M6 2.6.2 M6. 3.1.2 M6.	2.8.2 3.3.2 M3 68 2.6.5 K5 2.5.2 M7	.3 .2 .9 M.5.
(11) B(20) B(27)	.9 .5 -2.8 .4 .2.5 .4 .5 .4 .6 .2 .5 .4 .6 .2 .5 .4 .6 .2 .5 .4 .6 .2 .5 .5 .5 .5 .8 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6	4 .2 -2.6 .2 -2.5 .2 -3.8 .2 -2.7 .3 -3.4 .2 -2.7 .3	.7 .2 -2.5 .2 -3.4 .2 M6 -2.6 .2 M63.1 .2 M6.	-2.8.2 -3.3.2 M3 G8 .5.4 -2.6.5 K5	-3.3.2 M68.4 .4.4 -1.9.2 M20.4 -1.5.2 C5.
(4) m(11) m(20) m(27)	.3 .3 .6 .4 .8 .4 .2 .5 .4 .3 .4 -1.5 .4 -2.7 .5 -6.4 .6 .9 .4 .6 .2	.6 .34 .2 -2.6 .2 -2.5 .2 -3.8 .2 -2.7 .3 -3.4 .2 -2.7 .3 -3.4 .2 -2.7 .3	.6.3 -2.5.2 -8.4.2 -8.3 -2.6.2 M63.1.2 M6.	.5 .4 .3 .2 .2 .8 .2 .3 .2 .4 .3 .2 .1 .3 .2 .2 .4 .3 .2 .5 .4 .2 .6 .5 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7	.5 .4 M6. .0 .48 .4 M5 -1.4 .4 -1.9 .2 M2 .4 .3 -1.0 .4 -3.1 .4 -2.5 .3 C5,

Supplemental Table Of Observations

۱۹	22.12.1.1.2.0.0.2.2.2.2.2.2.2.2.2.2.2.2.	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	129.71.129.90.90.90.90.90.90.90.90.90.90.90.90.90	1 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	1.2. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
-	58.7 58.7 59.7 59.7 40.9 5.8	32.3 669.7 660.9 69.0 255.6 555.9 61.9	358.1 333.5 50.0 250.0 256.2 449.6 71.6 75.8	884.4 688.0 688.0 10.3 9.3 9.3 80.2 80.2	359.8 63.1 100.9 53.7 95.4 87.5 70.8
sqo	1111111111	1113121131	1 1 1 2 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	φ
Comments			EO		
Names	ER CYG DO 18198 DO 18218 20 CYG V1051 AQL ETA AQL	56 AQL V449 CYG HM VUL V468 CYG DD 18366	RU SGR RS AQL SVS 4941 SHARP. 101	2 CYG V1583 CYG GC 27796 GC 27811 HU SGE ETA SGE	DK VUL DD 38091 DO 6463 66 DRA V761 CYG DD 18592
Ŧ	7576	7584		7659	7704 7701 7696
TMSS	30393 20436 30394 50310 456 457 30397	30398 30398 30400 20442	-40296E -10527 -20578 40372	50314 30408 463 -30424 20450 20453 40381	20456 70162 10449 60279 20457 60281
AFGL	54338 54338 54338 54338 54368 54368 54368 54368 54388	54415 54405 24405 70925 70935 70935 54455 70945 70945	70958 54488 54498 54518 70968 54528 54538 70978	54568 54558 70998 71008 71018 71018 71028 54608	71038 54618 54618 54638 54638 54658 54658 54658 54658
Spec Type	M8 M6.5 M4 K3 III M5 F7 IB	X	M7E M7 M7 M6.5	MS.SE CS.5 KS K1 G K2 III	S4.2 M3 IIIA K3 III M3 G
i	ESE ASE E	75 5 5 5	2	SO X X SXX	W Z Z Z Z
m(27)	EEE AEU E	2 1 1 1	1 3	6 4 6 6	W.E.Z. Z. Z
ļ		4. r. 6. E. E. E.	3.7 .3 3.2 .3	4. w	6. 4.
11) m(20) m(27)	6. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8.	2.8 .4 .3 2.8 .4 .3 .3 .3 .5 .3	0 .2 -2.9 .2 -3.5 .4 -2.8 .4 -3.7 .3 -3.2 .3	2 .4 -2.8 .4 -2.4 .3 0 .2 -3.8 .2 -2.7 .5	6 .2 -3.9 .4
) m(20) m(27)	9.4 -1.8.3 -2.9.4 -3.3.2	-1.0 .4 -2.8 .4 -2.7 .3 -1.4 .4 -2 .8 .4 -3.6 .3	0 .2 -2.9 .2 -3.5 .4 -2.8 .4 -3.7 .3	-1.2 .4 -2.8 .4 -2.4 .3 -0 .2 -3.8 .2 -1.2 .2 -2.7 .5	6.2
(11) B(20) B(27)	4. 9. 4 8. 3. 2. 9. 4	1.0 .4	0.2 -2.9.2 -3.5.4 -2.8.4 -3.7.3	.0 .2 -3.8 .2 -2.4 .3 -2.7 .5	6.2 -3.9.4
4) m(11) m(20) m(27)	4. 9. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4.	.4 .3 .6 .3 .7 .4 -1.0 .4 -2.8 .4 -2.7 .3 -1.4 .4 -2.8 .4 -3.6 .3	.3 .4 .6 .4 .1.3 .5 .4 .3.7 .3 .5 .4 .3.7 .3	.3 .4 -1.2 .4 -2.8 .4 -2.4 .3 .4 .4 .4 .0 .2 -3.8 .2 -1.2 .2 .3 .4 .5 .5 .4 .5 .5 .4 .5 .5 .5 .4 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	.3 .3 .5 .6 .4 .4 .7 .4 .4 .4 .8 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4

Supplemental Table Of Observations

SSSSI BANGSKAL BUSSESSE SERESESSE STYPTERS CARRESTS AND SOUTH SERESESSES AND SERE

۵	2.2.1 9.2.2.1 6.2.2.2 1.2.2.2 1.2.2.2 1.2.2.2 1.3.4.6.0	111111111111111111111111111111111111111	0.000 - 0.00 - 0	111 0000 0000 00000 4000400 00000	4
-	16.8 74.0 66.8 354.8 67.7 28.6 84.1 105.4	354.7 41.8 42.0 17.1 17.1 17.1 18.7 59.4	358.1 358.7 94.7 75.2 74.8 75.2 76.9 76.9	48 4804 900 400 400 400 400 400 400 400 400 400	00000000000000000000000000000000000000
sqo		8118181181	1 1 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0-100	1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Comments					
Names	DQ 18628 SVS 101948 SVS 5059 V428 CYG	V515 AQL V557 CYG SVS 101959	V431 CYG CO SGE RZ SGR GC 28120 GC 28139 V432 CYG	RD CEP V499 AQL RT SGR DD 6615 SVS 101973 DG 38265 SHARP, 104 GC 28214 P CYG	MX CYG DO 18850 DO 18930 GC 28390
£			7742 7728 7744	7762	
TMSS	-30427 40388 30414 30416	30420 30421	40395 -40299E 60284 -30463E 30424 -20584	80039 -10532 -30465E 10462 70164	40403 40404 10465 20465
AFGL	5470S 5471S 5472S 7104S 7104S 5473S 5474S 5475S 7105S	7106S 5480S 5481S 7107S 7103S 7103S 7109S 7109S	54845 71105 71115 71115 54855 71125 54885 54885 54885	25433 549435 549435 549435 54955 54955 55965 54935	25588 54958 54968 71158 54978 55008 71168
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Supplemental Table Of Observations

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	7860			
20467 20468 20468 60290 30432 -20588	20471 60293 50332 481 20473 30438 30440	60294 60295 40436	30443 70167 40437 40438 60296	30446 40445 30449
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Supplemental Table Of Observations

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Ŧ			7999	8005	8044 8044 8044
TMSS	491 30452 20483 50340 40450	40451 30456	50344 495 -10552 20491	30461 10481 20494 50352	40459 10483 20497 60302 498 50354 30466
AFGL	7129S 5541S 5540S 2651S 5544S 5544S 7131S 5545S	71328 71338 71348 55468 71358 71368 71378 71388	26615 71405 55485 55505 55515 55515 55525 26735 26745 71415	55548 71428 71448 71448 71458 55558 55568 55568 55578 55588 55588	55595 55605 55615 71465 71465 55645 55635 55635 55635
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(11) m(20) m(27)		1.5.2 1.5.2 1.6.2 -3.0.2 M6 1.5.2 -1.8.2 -2.8.3	1.6 .2 M1 1.0 .4 M8 1.2 .4 -3.7 .6 -6.5 .6 K2 II M1 M2	2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2	-2.8 .5 -6.1 .6 M7 M3 I
() Ref m(4) m(11) m(20) m(27)		-1.5.2 -1.5.2 -1.6.2 -1.6.2 -3.0.2 -1.3 -1.5.2 -1.8.2	.5 .3 -1.6 .2 M1 -1.0 .4 M4 G .5 .4 -1.2 .4 -3.7 .6 -6.6 .6 K2 II M1 6 .4 M2	3 .5 .7 .2.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .	.5 .5 .6 .6 .6 .8 .5 .6 .1 .6 .M7
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C(1950) Ref m(4) m(11) m(20) m(27)	2 30 41 SPC 1 44 42 SPC 2 15 12 SAO .1 .3 9 58 42 IRC 1.6 .4 5 36 7 54 AGL 2.0 .3 5 36 38 IRC 1.6 .4 5 23 51 SPC .2 5 41 54 IRC 1.5 .5 6 41 54 IRC 1.5 .5	4 26 11 SPC -1.5.2 5 50 40 SPC -1.6.2 6 49 0 IRC 1.0.3 -1.5.2 5 33 56 SPC -1.6.2 6 58 SPC -1.6.2 7 30 44 SPC 1.1.3 7 30 44 SPC -1.5.2 7 26 7 SPC -1.5.2 -1.5.2 -1.8.2	3 12 18 AGL 1.5 .3 -1.6 .2 M1 3 24 33 SAO 2.0 .4 M4 G 7 57 0 SAO 1.5 .4 -1.2 .4 -3.7 .6 -6.6 .6 K2 II 8 25 18 AGL 8 .4 -1.2 .4 M1 9 2 5 18 AGL 8 .4 -1.2 .4 M1 9 1 57 SPC 9 3 10 10 10 10 10 10 10 10 10 10 10 10 10	3 14 48 SAO 1.3 .5 -2.5 .5 K5 -3.2 .2 8 28 35 SPC -2.3 .2 -2.3 .2 7 38 32 SPC -3.2 .2 -3.3 .2 A5 5 SPC -3.3 A5 5 SPC -3.3 SPC -3.	6 33 7 SAO 2.1 .5 -2.8 .5 -6.1 .6 M7 9 8 3 SAO 1.5 .5 M3 I 9 14 33 SAO 1.5 .4 K4 G 0 45 58 SPC 4 19 44 SAO 1.3 .3 M6 9 56 24 IRC 2.0 .5 .6 C M8 8 48 4 SAO 1.5 .4 M8 4 34 41 SAO 1.6 .5 M7

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-	62 88 47 73	84 - 48 - 1	5 2 6	75 75 77 70 70	20 16 82	55 86 103 85	353 355 110 113 353 95	355 106 78 86 81 116 10 344 343 344	00- 00- 00- 00- 00- 00- 00- 00- 00- 00-	343 833
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Ĩ	8057	9908	8076					8121	8130	
TMSS	10484	10485	-30440	10486	-30442	40473	80043	502	60306 40475 10490	
AFGL	5570S 5569S 2692S 5571S	55725 26965 71475 55735 71485		2705S 5574S 5575S 5576S		5579S 5581S 5580S 5582S	71525 71535 55845 55835 71545 55855	71558 27245 55865 55885 55895 55895 71565 71578	55905 55935 71608 71618 71628	55948 55948
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Names	DD 20209 RY EQU DD 39381 VS89 CYG	SVS 8646 IOT CAP GC 29917 17 AQR RZ AQR	SVS 8658 GC 30060 DO 20469 SVS 102106 BK CYG	FT PEG	LU CEP DO 7525 EM PEG DO 7532 VS39 CYG
Ŧ		8167	8219		
TMSS	40476 50368	20504 -20599 -10560 -10561	10495 10496 20510 50381	10497	60321 505 10500 10501 40487
AFGL	55958 27338 27348 27348 55998 71658 56008 27388	5602S 5603S 5603S 2744S 7166S 5607S 5609S 5610S 7167S	7168S 2762S 5614S 5614S 5616S 2770S 5618S 7169S 5619S	71708 27748 71718 56218 56228 56238 71728 71728	56255 56265 27835 71755 71765 71765 56275 56305 56325 56335
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(11) m(20) m(27) Spec	.7.4 -3.2.4 -4.0.3	.4 .4 .3.1 .5 M6 M6	7.4 -2.6.5 -3.8.4 1.1.4 -3.8.3	.7 .4 .4 .2 .3 .4 .4 .2 .3 .4 .4 .4 .2 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4	2.0 .4 -3.1 .4 1.6 .4 -2 2.0 .2 -2.7 .3 1.3 .4 M5 M5 M5 M5

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Comments					
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£	8317	8321 8322 8339	8372	8393 8405	8 426
TMSS	70172 50389 -30448 70175 20518	20519 -20608 30479 60329 40495 80050	20524 20524 40498 -20613 70180	60336 10505 10506 50414 50416 -30450 -30494E	60339 514 50418 -30496E
AFGL	56348 56358 27918 71177 56368 5637 7178 71798 56388	5639S 5640S 7180S 7180S 5641S 5642S 5643S 5643S 7181S	28145 56475 56485 56495 56505 56515 56515 28595	56558 56568 56568 56588 56578 56578 56608 56618 56618	28415 28465 28465 56665 56685 28495 56725 56725 56725 56725
Spec Type	C M7 III M1 K0 III K0 III G5 IB	KO IB AGM M7 M5 M6	M2 G M0 M0 M7 M2 :II	M6 M6 M5 M5 M5 M5 M5 M5 M5 M5 M5 M5	K4 III M5 C6,4 M3 W0
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Supplemental Table Of Observations

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-	111.0 111.3 91.6 83.0 55.6 100.7 28.0 66.0	3329.100.00 0.00.00 0.00.00 0.00.00 0.00.00 0.00.0	323.75 949.75 949.75 946.95 946.93 946.93 946.93 946.93	67.8 105.7 110.0 104.8 58.0 100.9 1.3 326.2	24 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
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Comments				Ö	
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